NEC

NDA-30137
Revision 2
STOCK # 0221381

MATWorX® Studio
User Guide

August, 2000

NEC America, Inc.

LIABILITY DISCLAIMER

NEC America, Inc. reserves the right to change the specifications, functions, or features, at any time, without notice.

NEC America, Inc. has prepared this document for the exclusive use of its employees and customers. The information contained herein is the property of NEC America, Inc. and shall not be reproduced without prior written approval from NEC America, Inc.

NEAX, MATWorX, DESIWorX, and D^{term} are registered trademarks of NEC Corporation.

© 2000 NEC America, Inc.
Printed in the USA

All other brand or product names are or may be trademarks or registered trademarks of, and are used to identify products or services of, their respective owners.

MS-DOS, Microsoft, Windows, Windows NT, Microsoft Windows 95, and Microsoft Windows 98 are registered trademarks of Microsoft Corporation.

Adobe Acrobat is a trademark of Adobe Systems Incorporated.

MATWorX Studio
User Guide

Table of Contents

Page

Chapter 1 About This Guide 1
- What This Guide Covers 1
- Purpose of This Guide 1
- How This Guide is Organized 2
- What You Need To Know 4

Chapter 2 Installing MATWorX Studio 5
- MATWorX Studio System Requirements 5
- MATWorX Studio Installation Instructions ... 6

Chapter 3 Quick Install 11
- What is the Quick Install? 11
- Starting the Quick Install 12
- Quick Install Online Help 15

Chapter 4 Getting Started 17
- Starting MATWorX Studio 17
- Configuring Device Connections 18
- Connecting to a PBX 22
  - Establishing a Modem Connection 22
  - Establishing a Direct or TCP/IP Connection 25
  - Troubleshooting a Failed Connection 29
- Disconnecting from the PBX 33
- Exiting MATWorX Studio 34

Chapter 5 MATWorX Studio Overview 37
- What is MATWorX Studio? 37
- MATWorX Studio Tools 38
  - Add-Ins (NEAX EXPRESS, NEAX IVS and IVS^2, NEAX2400) 38
  - MACH Script Editor (NEAX EXPRESS, NEAX IVS and IVS^2) 38
  - Device Configuration (NEAX EXPRESS, NEAX IVS and IVS^2, NEAX2400) 38
- MATWorX Studio Applications 39

Table of Contents
(Continued)

Page

DeviceServerWorX (DSW) 39
NEC Scheduler 39
DESIWorX 39
MATWorX Studio Windows and Components 39
Toolbar 40
Work Area 41
Message Queue Window 42
Toolbox 43
Using the MATWorX Studio Toolbar 44
Studio Group 45
Applications Group 45
Administration Group 46
Help Group 46
Configuring MATWorX Studio 46
Adding a New Group 46
Removing a Group 46
Inserting a Toolbox Item 47
Removing a Toolbox Item 47
Renaming a Toolbox Item 48
Inserting an Application 48
Removing an Application 49
Renaming an Application 49
Setting Studio Display Options 49
Arranging MATWorX Studio Windows 50
Printing a Report 51

Chapter 6 DeviceServerWorX 53

What is the DeviceServerWorX? 53
DeviceServerWorX Communication Overview 54
DeviceServerWorX Configurations 55
Centralized MAT Configuration 57
DeviceServerWorX Online Help 58
Accessing the DSW Help System 58
What's This? Help 59
Tool Tips 59

Chapter 7 Add-ins 61

What is an Add-in? 61
Four Categories of Add-ins 62
Features 62

Table of Contents
(Continued)

Page

Enhanced Features 62
Commands 63
Wizards 64
Installing an Add-in 65
Starting an Add-in 68
Removing an Add-in 68
Add-in Online Help 71

Chapter 8 MACH Script Editor 73

What is the MACH Script Editor? 73
Starting the MACH Script Editor 74
MACH Script Editor Online Help 76

Chapter 9 NEC Scheduler 77

What is the NEC Scheduler? 77
Starting the NEC Scheduler 78
NEC Scheduler Online Help 80
Accessing NEC Scheduler Online Help 81
What's This? Help 81
Tool Tips 81

Chapter 10 DESIWorX 83

What is DESIWorX? 83
Starting DESIWorX 84
DESIWorX Online Help 85
Accessing DESIWorX Online Help 85
What's This? Help 86
Tool Tips 86

Chapter 11 MATWorX Studio Online Help 87

MATWorX Studio Online Help Features 87
Accessing the Online Help System 87
Main Help Contents 88
Dialog-level Help 88
What's This? Help 88
Tool Tips 89
Printing Help Topics 89

Appendix A Extended Command Set 91

List of Figures

Figure	Title	Page
Figure 2-1	Run Dialog	8
Figure 2-2	MATWorX Install Dialog	8
Figure 2-3	Insert Configuration Key Diskette Dialog	9
Figure 2-4	Setup Complete Dialog	10
Figure 3-1	Toolbar and Work Area Windows	12
Figure 3-2	Toolbox Window	13
Figure 3-3	Toolbox and Administration Items	14
Figure 3-4	Quick Install Notebook (NEAX EXPRESS)	15
Figure 4-1	Starting MATWorX Studio	18
Figure 4-2	MATWorX Studio Toolbar and Work Area	18
Figure 4-3	Toolbox Window	19
Figure 4-4	Toolbox and Administration Items	20
Figure 4-5	Device Configuration Window	21
Figure 4-6	Device Configuration Settings	21
Figure 4-7	Toolbox Window	23
Figure 4-8	Connect and Disconnect Items	24
Figure 4-9	PBX Login Dialog	25
Figure 4-10	Toolbox Window	26
Figure 4-11	Connect and Disconnect Items	27
Figure 4-12	PBX Login Dialog (client/server mode)	28
Figure 4-13	Connect and Disconnect Items	34
Figure 4-14	Close Confirmation Dialog	35
Figure 5-1	MATWorX Studio Windows	40
Figure 5-2	MATWorX Studio Toolbar	41
Figure 5-3	MATWorX Studio Work Area (Displaying Message Queue Window and Toolbox)	42
Figure 5-4	Message Queue Window	43
Figure 5-5	MATWorX Studio Toolbox	44
Figure 5-6	MATWorX Studio Toolbar	45
Figure 5-7	Print Preview Dialog	51
Figure 6-1	DeviceServerWorx Interface Window	53
Figure 6-2	DeviceServerWorX Monitor Window	54

List of Figures
(Continued)

Figure	Title	Page
Figure 6-3	DeviceServerWorX Communication Flow	55
Figure 6-4	DeviceServerWorX Stand-alone Configuration	56
Figure 6-5	Example Client/Server Configuration	57
Figure 6-6	DeviceServerWorX Centralized MAT Configuration	58
Figure 7-1	Feature Add-ins	62
Figure 7-2	Enhanced Feature Add-ins	63
Figure 7-3	Command Add-ins	63
Figure 7-4	Software Activation Tool Wizard	64
Figure 7-5	Studio Toolbar and Work Area Windows	65
Figure 7-6	Studio Toolbar, Work Area, and Toolbox Windows	66
Figure 7-7	Toolbox Pop-up Menu	67
Figure 7-8	Add-in Components Dialog	67
Figure 7-9	Studio Toolbar and Work Area Windows	68
Figure 7-10	Studio Toolbox Window	69
Figure 7-11	Toolbox Pop-up Menu	70
Figure 7-12	Remove Add-in Confirmation Dialog	70
Figure 8-1	MACH Script Editor Dialog	73
Figure 8-2	Toolbar and Work Area Windows	74
Figure 8-3	Toolbox Window	75
Figure 8-4	Toolbox Window and Tools Items	75
Figure 9-1	NEC Scheduler Dialog	77
Figure 9-2	Toolbar and Work Area Window	79
Figure 9-3	Applications Group Window	80
Figure 10-1	DESIWorX Dialog	83
Figure 10-2	Studio Toolbar Window	84
Figure 10-3	Studio Toolbar, Work Area, and Toolbox Windows	85

List of Tables

Table	Title	Page
Table 2-1	System Requirements	5

Chapter 1 About This Guide

What This Guide Covers

MATWorX Studio currently supports programming for NEAX EXPRESS, NEAX2000 (IVS and IVS^2), and NEAX2400 devices. However, the devices you can program depend upon your hardware configuration and the MATWorX Studio software you install.

Throughout this Guide, the word ‘device’ refers to hardware or software components such as the NEAX2000 or NEAX2400 families of PBXs, NEAX ATM switches, and NEC Video codec units.

Purpose of This Guide

This user guide contains useful information that helps you install and use the MATWorX Studio program. It highlights many key features of the program including the MATWorX Studio Work Area, Toolbar, DeviceServerWorX, add-ins, Device Configuration, MACH Script Editor, NEC Scheduler, DESIWorX, Extended Command Set, Error Codes, and the Online Help System.

This guide supplements the MATWorX Studio online Help system and the individual add-in Help systems. These Help systems provide context-sensitive information and procedures that help you perform MATWorX Studio tasks. Refer to Chapter 11 “MATWorX Studio Online Help” for information about the Help system and how to access it.

How This Guide is Organized

The MATWorX Studio User Guide contains the following chapters:

- Chapter 2 “Installing MATWorX Studio” describes the necessary hardware (computer equipment) and software you need to run the MATWorX Studio program, as well as procedures for installing MATWorX Studio on your computer’s hard drive.
- Chapter 3 “Quick Install” describes a software tool that gives you an easy, step-by-step way to set up and configure an NEC PBX.
- Chapter 4 “Getting Started” describes how to launch and exit MATWorX Studio, and how to launch the Device Configuration to configure a PBX or other device.
- Chapter 5 “MATWorX Studio Overview” describes the MATWorX Studio program, its features, buttons, work area, Toolbar, Toolboxes, add-ins, and application tools.
- Chapter 6 “DeviceServerWorX” describes how MATWorX Studio applications communicate with connected devices via the DeviceServerWorX. The DSW also provides logs and reports that help you evaluate a device’s performance.
- Chapter 7 “Add-ins” describes what add-ins are, how they work, and how to add and remove them. Add-ins are the basic components of MATWorX Studio. Users can also create custom add-ins for specialized business solutions by purchasing a developer’s kit from NEC or an authorized NEC dealer.
- Chapter 8 “MACH Script Editor” describes the concept and operation of the MOC Accelerated Command Heap (MACH) window. This window is a separate and powerful tool integrated into the MATWorX Studio software. It is similar to working with the Maintenance Operation Console

(MOC), but provides much more functionality by letting you create a list of PBX commands (a script) which you can save and run at any time.

- Chapter 9 “NEC Scheduler” describes the features and operations of the NEC Scheduler application. The NEC Scheduler is a versatile application that lets you schedule add-ins or other programs to perform tasks at specific times. You can also use the NEC Scheduler to schedule NEAX2000 Command Scripts that were created using the MACH Script Editor.
- Chapter 10 “DESIWorX” describes the features and operations of the DESIWorX application. Using DESIWorX, you can create labels for the function keys of your Dterm telephones. DESIWorX saves these labels in a database. You can enter function key caption information for the label and print the labels to be placed on the Dterm.
- Chapter 11 “MATWorX Studio Online Help” describes the online Help system in detail, how to access it, and how to print Help topics.
- Appendix A “Extended Command Set” lists the Extended Command Set you can use in the MACH Script Editor window. The Extended Command Set characters are modifiers you type in front of a NEAX2000 command in the MACH Script Editor window. Using Extended Commands greatly reduces the number of commands needed to perform certain tasks.

What You Need To Know

This guide assumes you are familiar with basic Windows operations, such as opening, closing, moving, and resizing windows; selecting items from menus; and using the mouse.

If you need more information about any of these tasks, refer to Microsoft's Windows documentation or the Windows online Help system installed on your computer.

Chapter 2 Installing MATWorX Studio

In this chapter you learn about the following:

- MATWorX Studio System Requirements
- MATWorX Studio Installation Instructions

MATWorX Studio System Requirements

MATWorX Studio requires an IBM-compatible PC running Microsoft Windows 95, 98, or NT 4.0 and a NEAX EXPRESS, NEAX2000, or NEAX2400 PBX with 1000 series software or higher.

Table 2-1 System Requirements

Minimum Requirements	Recommended
Pentium 166 MHz processor	Pentium 333 MHz processor
32 MB RAM (Windows 95) 64 MB RAM (Windows 98/ NT)	64 MB RAM 128 MB RAM (Windows 98/ NT)
Available hard-disk space before installation: 75 MB - Minimum installation 200 MB - Full Installation	Available hard-disk space before installation: 200 MB - Minimum installation 300 MB - Full Installation
SVGA monitor, 800 x 600 resolution	17” SVGA monitor, 1024 x 768 resolution
3.5” diskette drive, CD-ROM drive	
Valid NEAX hardware connection (direct serial, modem, or TCP/IP)	
Mouse	

MATWorX Studio Installation Instructions

To install MATWorX Studio for the first time, or to add optional components you purchase later, use the installation CD and configuration diskette included in your MATWorX Studio package. You must run the Setup program from within Windows.

Important: *Be sure to close all open Windows programs and screen savers and disable any virus detection programs before running the Setup program.*

Note 1: *The Setup program detects and uninstalls previous versions of MATWorX or MATWorX Studio on your computer. Depending on your configuration, Setup may need to restart your computer several times. After uninstalling the previous versions, Setup automatically continues installing the new version.*

Note 2: *Installing MATWorX Studio requires a configuration key diskette, which is included in your software package. This diskette instructs the Setup program to install and enable the MATWorX Studio software and any optional components you have purchased.*

If you later purchase optional components, you will receive a new configuration key diskette enabling the new features. To replace missing diskettes or to order additional components, contact your NEC representative.

Note 3: *MATWorX Studio requires the Adobe Acrobat Reader software be installed on your computer. After installing MATWorX*

Studio software, the Setup program gives you the option to install the version included on the MATWorX Studio CD-ROM.

The following procedure explains the MATWorX Studio installation. The Setup program consists of a series of dialogs that supply you with default selections regarding the installation of files to your hard disk. To accept the default answers, click the **Next** button.

Note: *The following procedure assumes you are starting the Setup program from your computer's CD-ROM drive* ***D:****. If you start from a different drive, substitute the letter of that drive in this procedure.*

If you want to istall MATWorX Studio on a laptop computer which has only one drive bay, or to install from a network drive, refer to the Read Me file on the MATWorX Studio CD-ROM.

1. Launch Microsoft Windows on your computer.
2. Place the MATWorX Studio CD in the CD-ROM drive.

Note: *If you have enabled Auto Insert Notification on your computer, the Setup program launches automatically. Continue by jumping to Step 5 within this procedure.*

3. Click the Windows Start button and select Run.... from the pop-up menu. The Run... dialog displays (Figure 2-1).

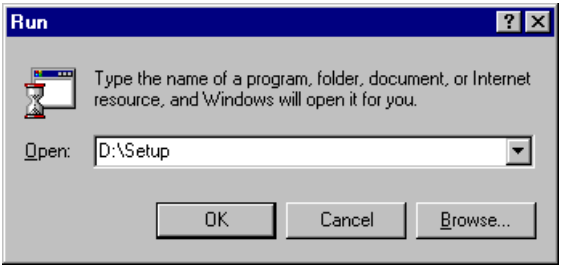

Figure 2-1 Run Dialog

4. Type **D:\Setup** in the Open text box and click **OK**. The MATWorX Install dialog displays (Figure 2-2).

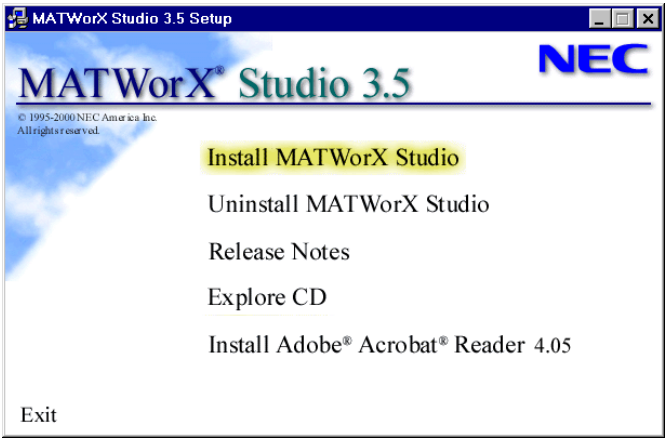

Figure 2-2 MATWorX Install Dialog

5. Click **Install MATWorX Studio** and follow the prompts in the Setup program to continue the installation. The Setup program uninstalls previous versions of MATWorX/MATWorX Studio and upgrades any necessary Windows components.

6. Insert the configuration key diskette in your computer's floppy drive when prompted (Figure 2-3).

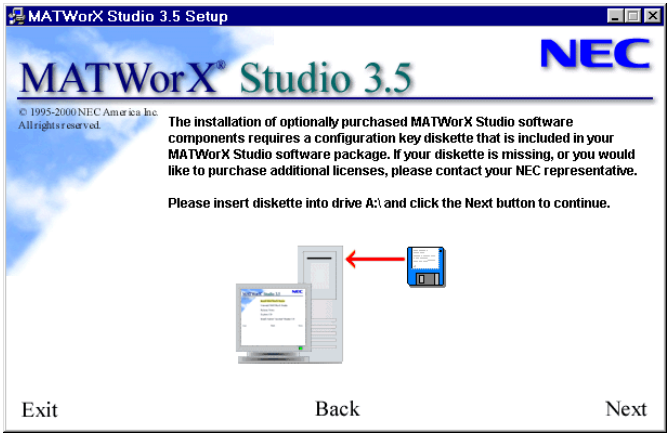
MATWorX Studio 3.5 Setup
NEC
MATWorX® Studio 3.5
© 1995-2000 NEC America Inc.
All rights reserved.
The installation of optionally purchased MATWorX Studio software components requires a configuration key diskette that is included in your MATWorX Studio software package. If your diskette is missing, or you would like to purchase additional licenses, please contact your NEC representative.
Please insert diskette into drive A:\ and click the Next button to continue.
Exit
Back
Next

Figure 2-3 Insert Configuration Key Diskette Dialog

7. Click Next to continue the installation. The Setup program reads the information on the configuration key diskette and determines which files and optional components to copy to your computer's hard drive.

8. Follow the on-screen prompts to complete the installation.

9. The Setup Complete dialog displays (Figure 2-4) after the Setup program finishes copying the necessary files to your computer's hard drive.

Setup Complete
Setup has finished copying files to your computer.
Before you can use the program, you must restart Windows or your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish

Figure 2-4 Setup Complete Dialog

10. Select a radio button to specify whether you want to restart your computer immediately or later. Then, click the **Finish** button.

    You must restart your computer to complete the installation. The Setup program then makes necessary changes to your computer's configuration and launches automatically after the computer restarts to complete the MATWorX Studio installation.

Note: *Leave the MATWorX Studio CD-ROM in your computer's drive until the Setup program completes the installation and restarts your computer.*

11. After your computer restarts, the Setup program lets you optionally install the Adobe Acrobat Reader software.

Chapter 3 Quick Install

In this chapter you learn about the following:

- What is the Quick Install?
- Starting the Quick Install
- Quick Install Online Help

What is the Quick Install?

The Quick Install provides an easy, step-by-step way to set up an NEC PBX. MATWorX Studio includes three Quick Install programs you can use to configure a NEAX EXPRESS, NEAX1000, or NEAX2000. Everything you need is conveniently packaged in one checklist that resembles a notebook.

Quick Install provides you with a lot of flexibility. For example, you can create a Notebook file (.nbk) anywhere, save it, and then carry it to the PBX site. Once there, you load it on the PC connected to the PBX and then write the data to the PBX. It's that simple! You can also create a new notebook for each PBX you install, or you can create a few standard notebooks that you can load and edit.

To set up a PBX, simply work sequentially through the checklist and make all the settings. Then, when you reach the Update Data to System tab, click the Write To PBX button. Quick Install reads your Notebook file and sends the necessary commands to the PBX.

Starting the Quick Install

The following procedure explains how to access and run the Quick Install from MATWorX Studio.

1. Launch MATWorX Studio. The Toolbar and Work Area windows display (Figure 3-1).

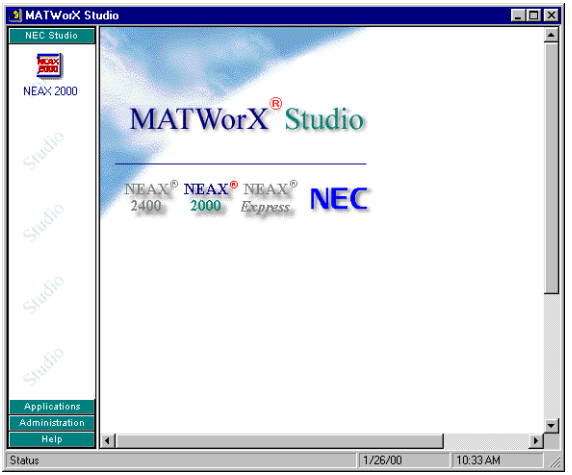

Figure 3-1 Toolbar and Work Area Windows

2. Click the item in the Toolbar representing your PBX. The Toolbox window displays (Figure 3-2).

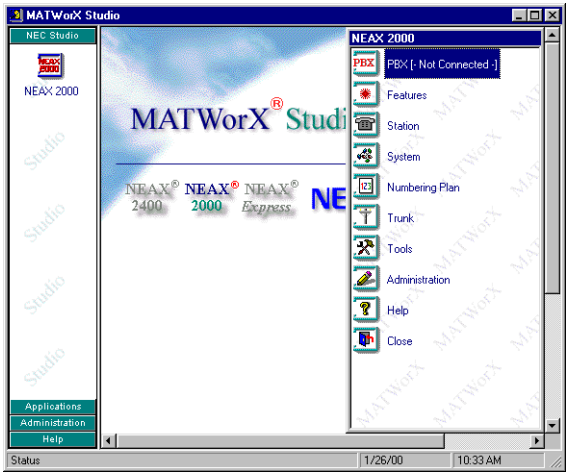

Figure 3-2 Toolbox Window

3. Click the Administration item in the Toolbox. A list of installed administration applications displays (Figure 3-3).

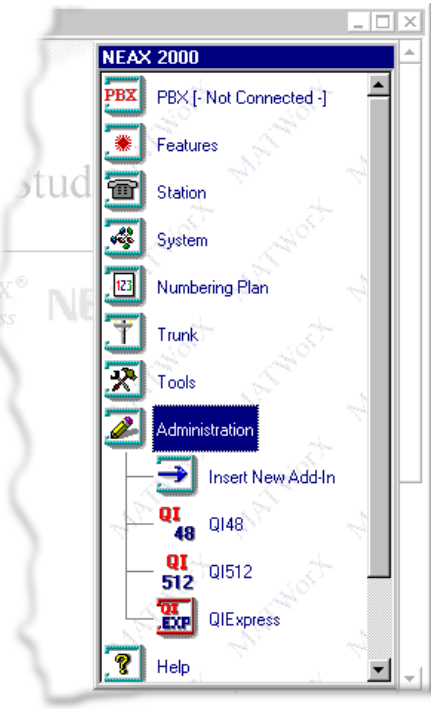

Figure 3-3 Toolbox and Administration Items

4. Click the QIEXPRESS, QI48, or QI512 item, depending on whether you are setting up a NEAX EXPRESS, NEAX1000, or NEAX2000, respectively. The Quick Install notebook displays (Figure 3-4).

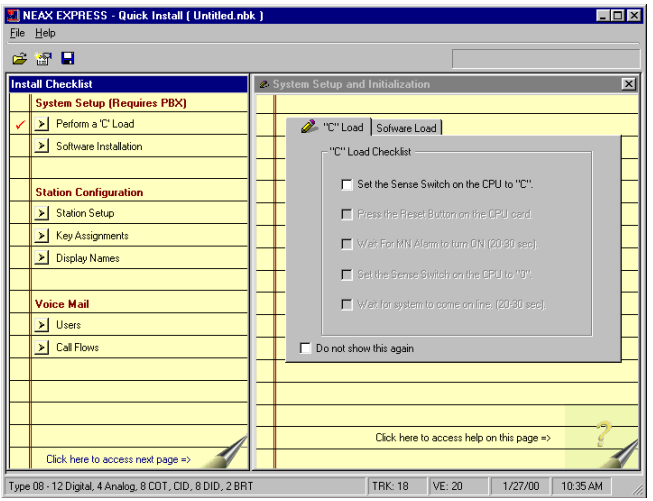
NEAX EXPRESS - Quick Install (Untitled.nbk)
File Help
Install Checklist
System Setup (Requires PBX)
Perform a 'C' Load
Software Installation
Station Configuration
Station Setup
Key Assignments
Display Names
Voice Mail
Users
Call Flows
Click here to access next page =>
System Setup and Initialization
"C" Load
Software Load
"C" Load Checklist
Set the Sense Switch on the CPU to "C".
Press the Reset Button on the CPU card.
Wait For MN Alarm to turn ON (20-30 sec).
Set the Sense Switch on the CPU to "0".
Wait for system to come on line. (20-30 sec).
Do not show this again
Click here to access help on this page =>
Type 08 - 12 Digital, 4 Analog, 8 COT, CID, 8 DID, 2 BRT
TRK: 18
VE: 20
1/27/00
10:35 AM

Figure 3-4 Quick Install Notebook (NEAX EXPRESS)

You have now successfully launched the Quick Install notebook.

Quick Install Online Help

This guide provides a simple overview to the features and capabilities of the Quick Install. For more detailed information, including procedures and descriptions, access the online Help for the Quick Install.

Help for the Quick Install is included in the MATWorX Studio online Help system. You can access the Help system from the Help menu or by pressing **F1**. Refer to Chapter 11 “MATWorX Studio Online Help” for features and ways to access and print Help topics.

This page is for your notes.

Chapter 4 Getting Started

In this chapter you learn about the following:

- Starting MATWorX Studio
- Configuring Device Connections
- Connecting to a PBX
- Disconnecting from the PBX
- Exiting MATWorX Studio

Starting MATWorX Studio

This procedure describes how to launch MATWorX Studio each time you want to run the program.

Note: *Before you can use MATWorX Studio to program a device, you must configure a communication link between it and your PC. Refer to* "Configuring Device Connections" on page 18.

1. Launch Microsoft Windows on your computer.
2. Select Programs / NEC / MATWorX Studio / MATWorX Studio from the Windows Start button (Figure 4-1). The MATWorX Studio Toolbar and Work Area display. (Figure 4-2).

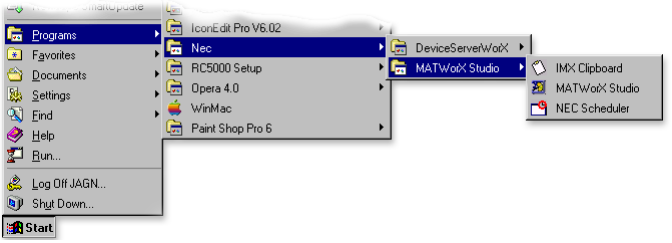

Figure 4-1 Starting MATWorX Studio

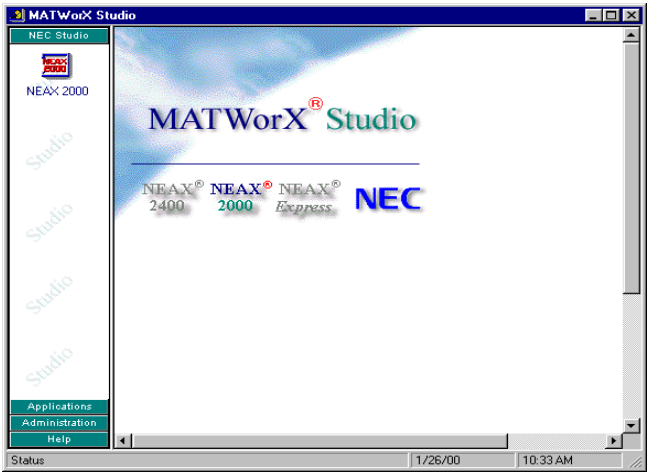

Figure 4-2 MATWorX Studio Toolbar and Work Area

You have now successfully started MATWorX Studio.

Configuring Device Connections

The Device Configuration lets you specify which type of connection you want to establish, and determines the proper communication settings between your PC and a connected device.

If you have already established a connection between your computer and a device, you can also run the Device Configuration to connect to a different device or change the connection type. The following procedure explains how to launch the Device Configuration:

1. Launch MATWorX Studio.

2. Click the item representing your device in the Studio Toolbar. The Toolbox window displays. (Figure 4-3).

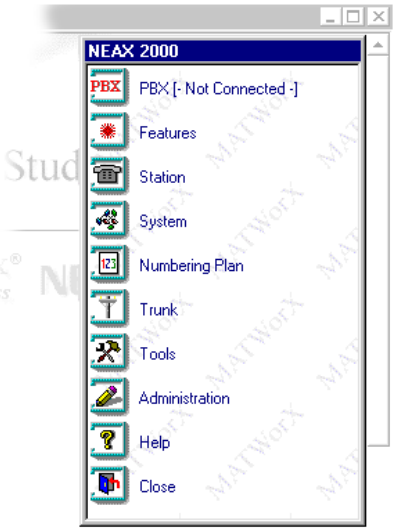

Figure 4-3 Toolbox Window

3. Click the Administration item. The Administration item expands to display the Device Configuration item. You may need to use the window's scroll bars or resize the Toolbox to see all the items (Figure 4-4).

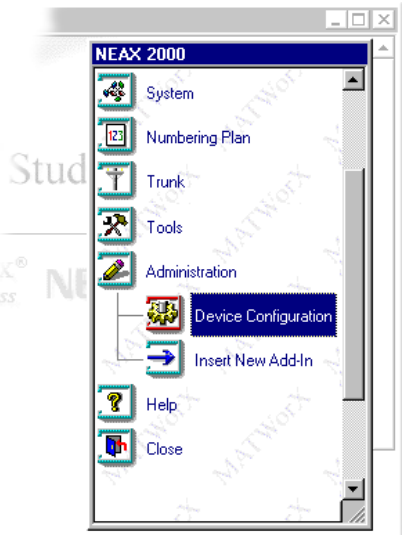

Figure 4-4 Toolbox and Administration Items

4. Click the Device Configuration item. The Device Configuration window displays (Figure 4-5).

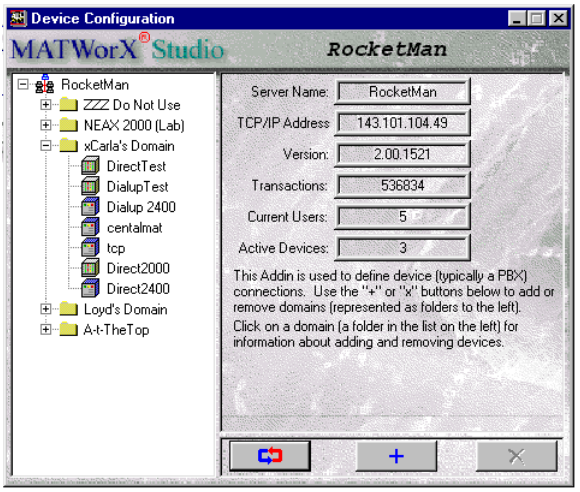

Figure 4-5 Device Configuration Window

5. Select the device you wish to configure from the list of connected devices. A panel displays showing the current settings (Figure 4-6).

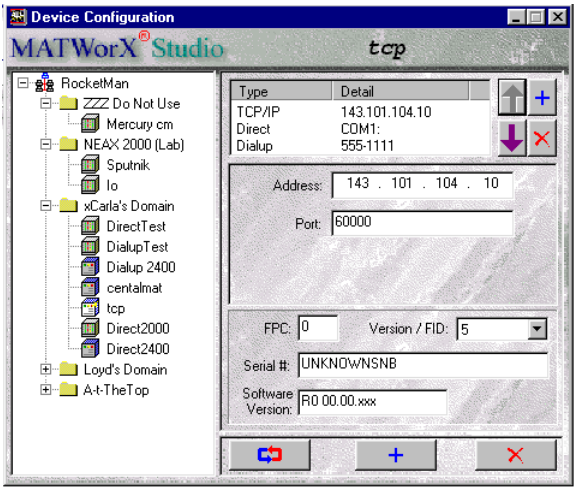

Figure 4-6 Device Configuration Settings

6. Make any changes to the configuration information using the available fields. For more detailed information about configuring devices, refer to the Device Configuration online Help. You can press **F1** at any time during the configuration to view online Help.

Connecting to a PBX

There are three ways to connect your PC to an NEC PBX:

- Use a modem to establish a dial-up connection.
- Use a serial cable to establish a direct connection.
- Use TCP/IP over your Local Area Network (LAN), if so configured. (Requires DeviceServerWorX.)

The method you use depends on how you installed and configured the device to which you want to connect. A serial cable direct connection offers better performance than a modem connection, but requires that the PC and device be within 50 feet of each other. A TCP/IP connection offers excellent performance and flexibility but requires a network connection to both your PC and the device.

Establishing a Modem Connection

To connect to a PBX using a modem connection, do the following:

1. Launch MATWorX Studio.

2. Click the item representing your PBX in the Studio Toolbar. The Toolbox window displays. (Figure 4-7).

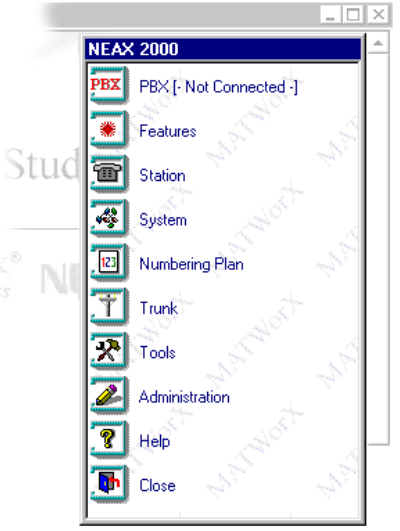

Figure 4-7 Toolbox Window

3. Click the PBX item. The Connect and Disconnect items appear (Figure 4-8).

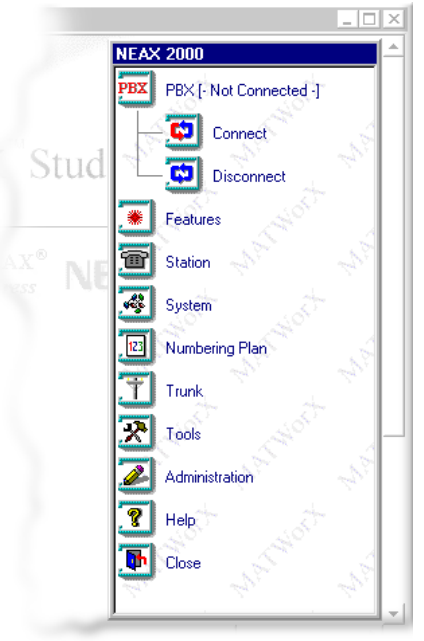

Figure 4-8 Connect and Disconnect Items

4. Click the Connect item. The PBX Login dialog displays (Figure 4-9).

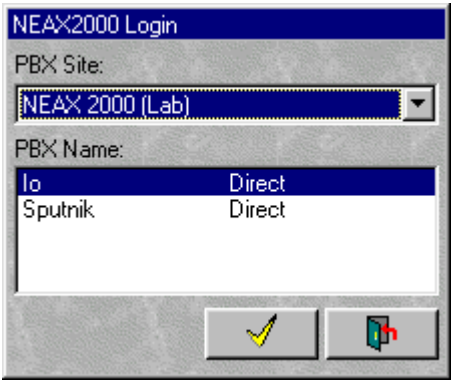

Figure 4-9 PBX Login Dialog

5. Select the PBX to which you want to connect from the PBX Name list. Click the PBX Site drop-down menu to view available PBXs at other sites, if necessary.

6. Click the Connect button .

You have now successfully connected MATWorX Studio to the PBX.

Establishing a Direct or TCP/IP Connection

Once you have established the communication settings between your computer and the PBX, you can connect to it using MATWorX Studio.

1. Launch MATWorX Studio.

2. Click the item representing your PBX in the Studio Toolbar. The Toolbox window displays (Figure 4-10).

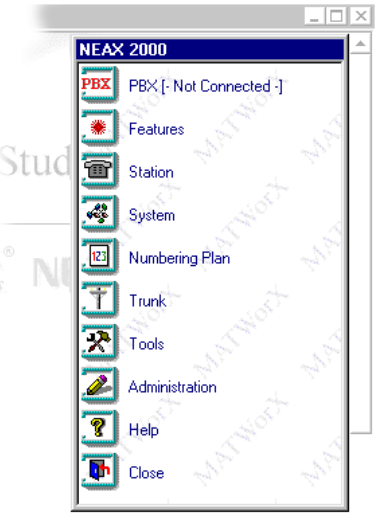

Figure 4-10 Toolbox Window

3. Click the PBX item. The Connect and Disconnect items display (Figure 4-11).

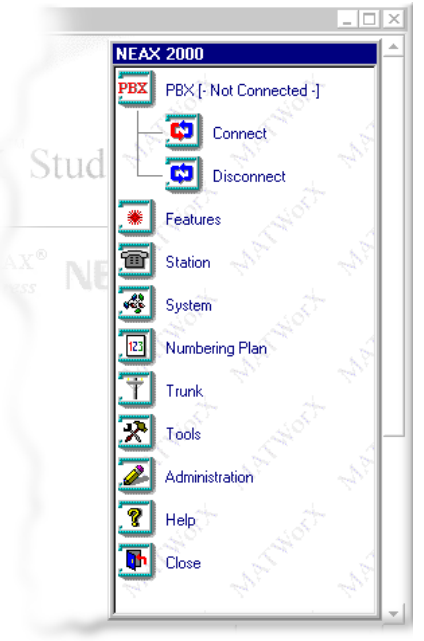

Figure 4-11 Connect and Disconnect Items

4. Click the Connect item. The PBX Login dialog displays (Figure 4-12).

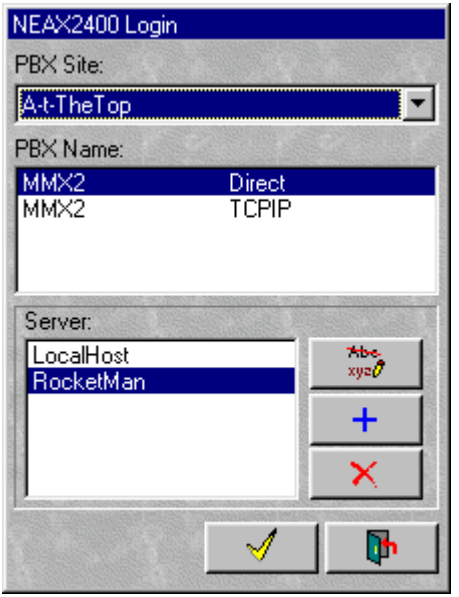

Figure 4-12 PBX Login Dialog (client/server mode)

5. Double-click the name of the server to which you want to connect. A list of available PBX Sites and PBX Names appears in the appropriate dialog fields.

6. Select your PBX site from the drop-down menu, if necessary. A list of connected PBXs displays in the PBX Name window.

7. Select the PBX to which you want to connect from the list of PBX names.

8. Click the Check button. This launches the connection process.

You have now successfully connected MATWorX Studio to the PBX.

Troubleshooting a Failed Connection

The following list provides possible reasons for a failed connection between your computer and the PBX, as well as the action required to correct the problem.

- Have you created a hardware link between your PC and the PBX?

  Yes - Go to the next bullet item.
  No - MATWorX Studio will not operate properly until the hardware link is made. Linking your PC to the PBX is an important part of the PBX installation. This differs from configuring the communication settings between your PC and the PBX (using the Device Configuration.) Please read your PBX's Operation Guide for complete instructions on setting up the hardware link.
  I don't understand the question - Your PC and the PBX need to be connected by a serial cable, modem connection, or TCP/IP connection. For example, when the PC is located near the PBX, it is best to link them directly using a serial cable. When the PC is located away from the PBX, they must be linked over a telephone line using a modem, or over a local area network using TCP/IP.

- Have you entered configuration information for your PBX?

  Yes - Go to the next bullet item.
  No - Run the Device Configuration to establish the proper communication settings between your computer and the PBX.
  I don't understand the question - Once you establish a proper hardware link, you must tell your PC how to communicate with the PBX. For example, to dial the PBX using a modem connection, your PC must know the PBX modem's phone number. If you have not entered this data, you must do so by using the

Device Configuration.

- Have you used the Device Configuration again since the connection failed?

  Yes - Go to the next bullet item.
  No - Check the Device Configuration to confirm any connection changes and re-establish the proper communication settings between your computer and the PBX.
  I don't understand the question - You may have inadvertently changed a communication setting while modifying or adding a device.

- Is the failed connection a direct serial cable link, modem connection, or TCP/IP connection?

  Direct Connection
  Possible reasons:
  ✓ The PC COM port is currently in use by another application
  ✓ Wrong PC COM port selected during configuration
  ✓ Defective cable
  ✓ Loose cable connection
  ✓ Incorrect cable type
  ✓ Defective PC COM port hardware
  ✓ Defective PBX COM port hardware

  Modem Connection
  Several effective troubleshooting techniques require listening to the sounds your modem makes while it connects to a PBX. You may need to adjust the Speaker volume settings in the Windows Modems control panel on your computer to hear modem sounds and dial tones.

  ☞ No Dial Tone
  Action: Listen to the modem while it dials to determine whether dial tone was present.
  Possible reasons:
  ✓ PC modem's power is off (external only)
  ✓ PC modem's telephone line is not active or

not properly plugged in
✓ Device Configuration indicates the wrong PC COM port
✓ Device Configuration indicates a Direct setting when the connection is really Modem
✓ External modem data cable is not properly connected to the PC
✓ External modem data cable is defective
✓ Telephone line cable is defective

☞ No Ringing

Action: Listen to the modem after it dials to determine that no ringing occurred.
Possible reason: Incorrect phone number (too short, wrong digits, etc.)

☞ Ringing followed by a voice answer or a recorded message

Action: Listen to the modem while it dials to determine that the call was answered.
Possible reasons:
✓ Too many digits were entered for the phone number
✓ Incorrect digits
✓ Incorrect access code
✓ Incorrect area code

☞ Ringing, But No Answer

Action: Listen to the modem while it dials to determine that it kept ringing.
Possible reasons:
✓ Incorrect phone number
✓ PBX Port 1 is not set for the built-in PBX modem
✓ PBX power is off
✓ A valid telephone number is not assigned to the built-in PBX modem

☞ Busy Signal

Action: Listen to the modem while it dials to

determine that a busy signal is received.
Possible reasons:
✓ Incorrect phone number
✓ PBX modem is being accessed by another user

☞ Ring and Answer, but no connect message

Action: Listen to the modem while it dials to determine that the PBX answered. Watch for a Connect message.
Possible reasons:
✓ PC modem's highest speed is less than the PBX modem's speed
✓ Improper modem initialization string

☞ Connect message, but no carrier detect message

Action: Listen to the modem while it dials to determine that an answer was received. Watch for the Connect message, followed by the Carrier Detect message.
Reason: Possible incorrect PBX command. Do not use PBX Command 40, YY=11, Second Data = 5.

Note: *If you are an advanced user, you can change any of the device configuration settings using the* Device Configuration *dialog. Access this dialog from the DeviceServerWorX (DSW) by right-clicking the DSW icon* *in the Windows Toolbar system tray, then selecting the* Configure Devices *item.*

TCP/IP Connection

Action: Check the cable between your PC or PBX and the local area network.
Possible reasons:
✓ The cable is unplugged from one end

✓ The cable is not completely plugged in
✓ Defective cable

Action: Check to be sure the lights on your network card (if available) indicate a proper link to the network.
Possible reasons:
✓ The network card is defective
✓ The network card is not fully seated
✓ Your PC is not configured correctly
✓ The cable is not completely plugged in

Action: Check with your system administrator to see if there are network problems.
Possible reasons:
✓ The local area network is down
✓ The DeviceServerWorX is down

Action: Check your network settings in the Windows Network control panel.
Possible reasons:
✓ TCP/IP networking hasn't been configured
✓ The TCP/IP settings are incorrect

Disconnecting from the PBX

This procedure explains how to disconnect from a PBX when you are finished working with it.

1. Click the PBX item in the Toolbox. The Connect and Disconnect item display (Figure 4-13).

Figure 4-13 Connect and Disconnect Items

2. Click the Disconnect item. MATWorX Studio disconnects from the PBX.

Exiting MATWorX Studio

This procedure explains how to exit MATWorX Studio when you are finished working in the program. You should close all open MATWorX Studio add-ins, the Toolbox, and applications, then disconnect from the PBX before exiting the program.

1. Click the Windows Close button in the upper-right corner of the MATWorX Studio window, or press Alt-F4. The Close dialog displays (Figure 4-14).

Figure 4-14 Close Confirmation Dialog

2. Click the Yes button in the Close dialog.

You have now shut down MATWorX Studio.

This page is for your notes.

Chapter 5 MATWorX Studio Overview

In this chapter you learn about the following:

- What is MATWorX Studio?
- MATWorX Studio Tools
- MATWorX Studio Applications
- MATWorX Studio Windows and Components
- Using the MATWorX Studio Toolbar
- Configuring MATWorX Studio
- Printing a Report

What is MATWorX Studio?

MATWorX Studio is a Windows-based software application that lets you program and configure different NEC device types from your computer.

MATWorX Studio provides a common “look and feel” for all related NEC device software applications. Its graphical user interface (GUI) makes it easier for you to manage and configure your device’s features, especially if your installation contains several different device types.

MATWorX Studio’s add-ins make it easy for you to add or remove device features at any time. Add-ins are modular components that let you program specific features such as Caller ID, Station Management, Day/Night Modes, Line Key Assignments, and more.

Because add-ins are modular, you can add, remove, and upgrade them individually from within MATWorx Studio. Add-ins let you modify a device’s features without having to upgrade the MATWorX Studio application itself.

MATWorX Studio also gives you a convenient way to launch other commonly used applications, such as Microsoft Word or Excel, directly from its Toolbar.

MATWorX Studio Tools

MATWorX Studio includes several types of tools that help you perform specific tasks and procedures. You access these tools from the Toolbox.

Add-Ins (NEAX EXPRESS, NEAX IVS and IVS^2, NEAX2400)

Add-ins are the basic tools of MATWorX Studio. Each one gives you specific ways to program device features and functions. MATWorX Studio comes with many add-ins pre-installed in the Toolbar. Also, you can create custom add-ins for specialized business solutions by purchasing a developer's kit from NEC or an authorized NEC dealer. Refer to Chapter 7 "Add-ins" for more information.

MACH Script Editor (NEAX EXPRESS, NEAX IVS and IVS^2)

This is a powerful, time-saving tool that lets you create a list of NEAX2000 commands that perform a sequence of specific PBX tasks. This list, called a script, can be saved and run at any time. You can also use the MACH Script Editor to perform many other operations. Refer to Chapter 8 "MACH Script Editor" for more information.

Device Configuration (NEAX EXPRESS, NEAX IVS and IVS^2, NEAX2400)

The Device Configuration helps you establish the proper communication settings between your computer and a device.

It also helps you establish and manage groups of multiple devices, called domains. For example, you can assign, modify, and delete the device name (alias), type of device, device product version, features, connection settings, monitoring settings, remote modem settings, and other miscellaneous items.

MATWorX Studio Applications

MATWorX Studio software includes several applications that can run independently. However, when used in conjunction with MATWorX Studio or each other, these applications provide a robust suite of tools for configuring connected devices.

DeviceServerWorX (DSW)

The DSW provides and manages communication between MATWorX Studio tools and connected devices. It also provides logs and reports that help you evaluate a device's performance. Refer to Chapter 6 "DeviceServerWorX" for more information.

NEC Scheduler

The NEC Scheduler is a versatile application that can be used by itself or in conjunction with the MACH Script Editor. You can build scripts (a series of NEAX2000 commands) using the MACH Script Editor and then schedule them to run using the Scheduler.

You can also use the NEC Scheduler automatically to launch add-ins or applications at convenient times, such as backing up PBX data regularly. Refer to Chapter 9 "NEC Scheduler" for more information.

DESIWorX

DESIWorX is a unique application that lets you create and print function key labels for your Dterm telephones. The labels are saved in a database and can be modified and printed when necessary. Refer to Chapter 10 "DESIWorX" for more information.

MATWorX Studio Windows and Components

MATWorX Studio has four primary windows: the Toolbar, the Work Area, Message Queue, and Toolboxes (Figure 5-1).

Figure 5-1 MATWorX Studio Windows

Toolbar

The Toolbar (Figure 5-2) contains Group items representing categories for the types of tasks you will perform. Click on each Group's item to reveal items that launch MATWorX Studio applications, device Toolboxes, stand-alone applications such as DESIWorX, online Help, shortcuts to programs you use frequently, or configure the way MATWorX Studio windows appear.

You can add or delete Groups, as well as Toolbox or Application items within each Group. The exact number and appearance of the items in your Toolbar varies depending on MATWorX Studio's configuration and your personal preferences.

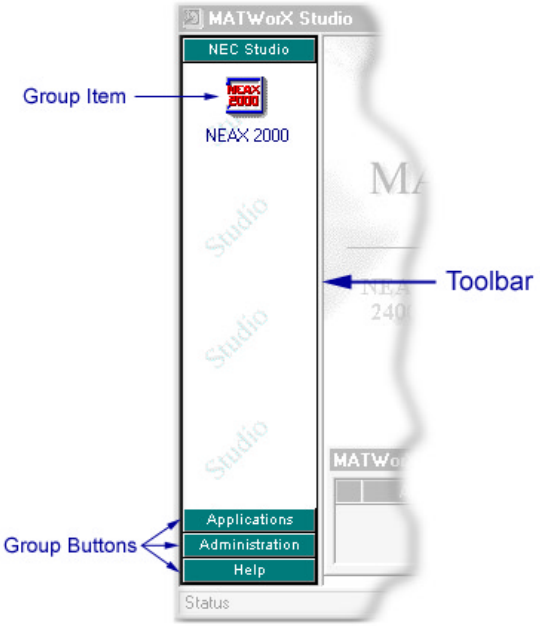

Figure 5-2 MATWorX Studio Toolbar

Work Area

The Work Area (Figure 5-3) contains message windows, wizards and windows for stand-alone applications, Toolboxes representing the installed add-ins, and dialog boxes for configuring each add-in's features.

The exact number and appearance of the items in your Work Area varies depending on your device's configuration and MATWorX Studio's configuration.

Figure 5-3 MATWorX Studio Work Area (Displaying Message Queue Window and Toolbox)

Message Queue Window

The Message Queue window (Figure 5-4) displays alarms, errors, events, and other information generated by the MATWorX Studio components. Right-click in the window to access many features, including:

- Printing the window's contents
- Sorting by priority, reporting application name, or time
- Show only alarms from a selected application or of a specified priority type
- Save window's contents to a comma-delimited file

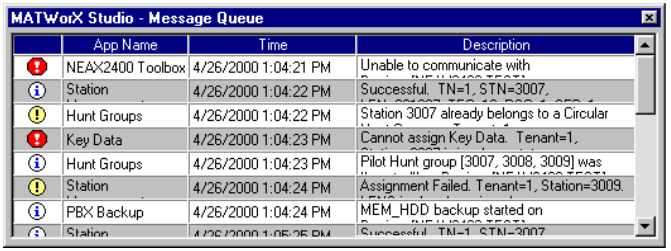

Figure 5-4 Message Queue Window

Toolbox

When you click an item within the Toolbar's NEC Studio Group, MATWorX launches the Studio application and displays a Toolbox window in the Work Area. This window contains items representing functions and tools you use to configure a connected device. Click an item to expand it and view its tools or related add-ins.

The exact number and appearance of items and add-ins in the Toolbox varies depending on the device's configuration.

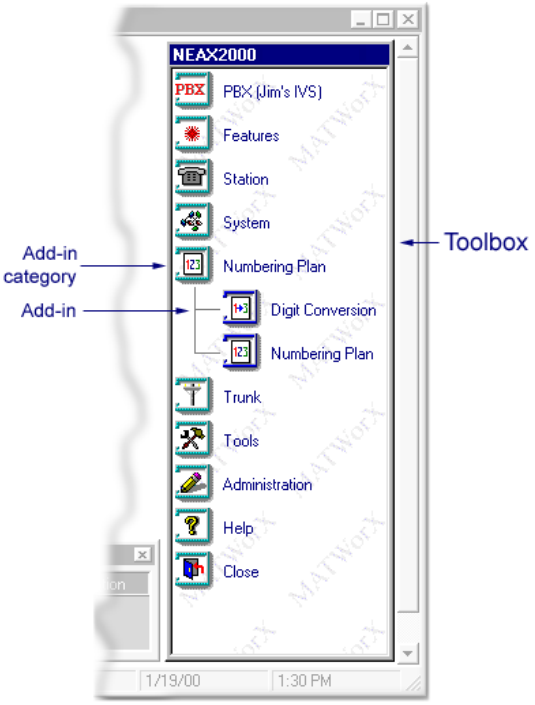

Figure 5-5 MATWorX Studio Toolbox

Using the MATWorX Studio Toolbar

The MATWorX Studio Toolbar (Figure 5-6) organizes MATWorX Studio functions into groups, each containing a list of items you can use to launch NEC device programming software, 3rd-party application software, and online Help systems. Each Toolbar group lets you add, rename, and remove items within the group.

The default MATWorX Studio Toolbar contains 4 groups: NEC Studio, Applications, Administration, and Help.

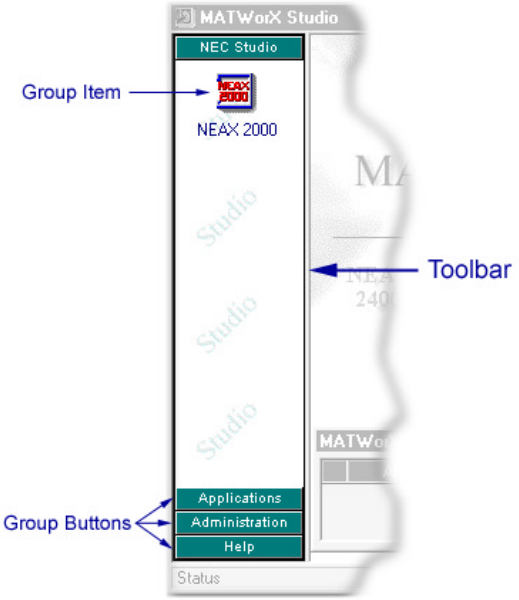

Figure 5-6 MATWorX Studio Toolbar

Studio Group

The Studio group contains Toolbox items representing devices you want to manage and configure. Click on a Toolbox item to launch it. MATWorX Studio then opens a Toolbox window in the Work Area containing add-ins and tools you use to configure connected devices.

Applications Group

The Applications group contains several stand-alone applications, such as the NEC Scheduler, DESIWorX, and the NEC Report Generator. You can also add shortcuts to applications you use frequently, such as Microsoft Word or Excel.

Administration Group

The Administration group contains items that let you customize MATWorX Studio's appearance. Use the Cascade/Tile Windows item to specify whether Work Area Windows overlap or display side-by-side. Use the Alarms/Events item to display the Message Queue window in the Work Area.

Help Group

The Help group contains items that let you access MATWorX Studio online Help, connect to the NEC National Technical Assistance Center for technical support (requires an Internet connection), and display which version of MATWorX Studio you are using.

Configuring MATWorX Studio

MATWorX Studio gives you the flexibility to customize not only its window appearance, but to add or remove components as your device configuration or personal preferences change.

Adding a New Group

To add a group to the MATWorX Studio Toolbar, do the following:

1. Right-click in the Toolbar. A pop-up menu displays.

2. Select Add New Group from the pop-up menu. A new group displays in the Toolbar, with the title "New Group" highlighted.

3. Change the name by typing a new name and pressing Enter. The newly titled group displays in the MATWorX Studio Toolbar.

Removing a Group

To remove a group from the MATWorX Studio Toolbar, do the following:

1. Select the group in the Toolbar you wish to remove.

2. Right-click in the Toolbar. A pop-up menu displays.

3. Select Remove Group from the pop-up menu. MATWorX removes the selected Group and its items from the Toolbar.

Note: *You cannot remove the four default groups (NEC Studio, Applications, Administration, and Help) from the Toolbar.*

Inserting a Toolbox Item

To insert a Toolbox item in the MATWorX Studio Toolbar, do the following:

1. Right-click in the Toolbar. A pop-up menu displays.

2. Select Insert New Toolbox from the pop-up menu. The MATWorX Studio Components window displays.

3. Select the desired .mws file from the window and click the Open button. The new toolbox displays in the NEC Studio group in the Toolbar.

Removing a Toolbox Item

To remove a Toolbox item from the MATWorX Studio Toolbar, do the following:

1. In the NEC Studio group, right-click on the toolbox item you wish to remove. A pop-up menu displays.

2. Select Remove Toolbox from the pop-up menu. The Remove window displays.

3. Click Yes to remove the toolbox item.

MATWorX removes the toolbox item from the NEC Studio group. The corresponding .mws file remains on the hard drive and can be re-inserted at another time.

Renaming a Toolbox Item

To rename a Toolbox item in the MATWorX Studio Toolbar, do the following:

1. In the NEC Studio group, right-click on the toolbox item to be renamed. A pop-up menu displays.

2. Select Rename Toolbox from the pop-up menu. The Toolbox name is highlighted.

3. Type the new name and press Enter. The new toolbox name displays in the NEC Studio group.

Inserting an Application

To insert an application shortcut in the MATWorX Studio Toolbar, do the following:

1. Select the Applications group item from the Toolbar.

2. Right-click in the Toolbar. The MATWorX Studio Applications window displays.

3. Change directories and folders to locate the application for which you want to insert a shortcut in the Applications group Toolbar.

4. Select the file and click the Open button. The application's software shortcut displays in the Applications group.

Note: *You can add an application to the Applications group only.*

Removing an Application

To remove an application shortcut from the MATWorX Studio Toolbar, do the following:

1. Select the Applications group item from the Toolbar.
2. Right-click on the application you want to remove. A pop-up menu displays.
3. Select Remove Application from the pop-up menu. The Remove window displays.
4. Click Yes to remove the application. MATWorX removes the application shortcut from the Applications group.

Renaming an Application

To rename an application shortcut in the MATWorX Studio Toolbar, do the following:

1. Select the Applications group item from the Toolbar.
2. Right-click on the application you want to rename. A pop-up menu displays.
3. Select Rename Application from the pop-up menu. The application name is highlighted.
4. Type the new name and press Enter. The new application name displays in the Applications group.

Setting Studio Display Options

To change the way MATWorX Studio displays windows in the Work Area, do the following:

1. Select the Administration group item from the Toolbar.
2. Click the Cascade Windows item. MATWorX Studio displays all open add-in windows in the

Work Area by overlapping them so the title bars are visible.

To display messages and alarms in the MATWorX Studio Work Area, do the following:

1. Select the Administration group item from the Toolbar.

2. Click the Alarms/Events item. The MATWorX Studio Message Queue window displays in the Work Area.

Note: *The Alarms/Events item is a toggle that alternately hides and displays the Message Queue window.*

Arranging MATWorX Studio Windows

You can configure MATWorX Studio to display multiple windows in the Work Area so they overlap (cascade) or so they appear side-by-side (tile) horizontally or vertically.

To cascade windows in the Work Area, do the following:

1. Right-click in the Work Area. The Work Area pop-up menu displays.

2. Select Cascade Windows. The open windows cascade within the MATWorX Studio Work Area.

To arrange windows top-to-bottom so they do not overlap, do the following:

1. Right-click in the Work Area. The Work Area pop-up menu displays.

2. Select Horizontally Tile Windows. The open windows display from top to bottom within the MATWorX Studio Work Area without overlapping.

To arrange windows side-by-side so they do not overlap, do the following:

1. Right-click in the Work Area. The Work Area pop-up menu displays.

2. Select Vertically Tile Windows. The open windows display side-by-side within the MATWorX Studio Work Area without overlapping.

Printing a Report

The MACH Script Editor, NEC Scheduler, and several add-ins let you print reports and listup data by clicking the Print Data button. The Print Preview dialog (Figure 5-7) automatically displays so you can preview the report before printing.

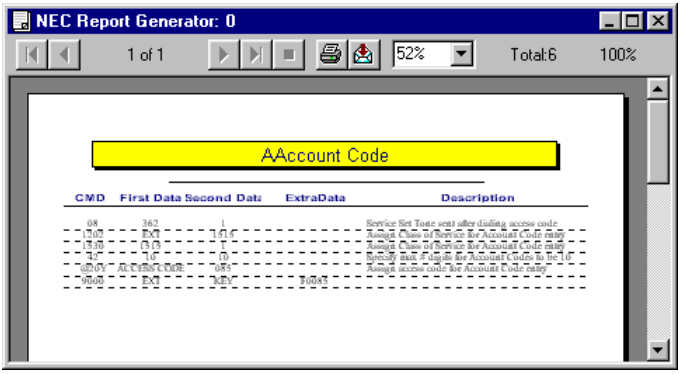

Figure 5-7 Print Preview Dialog

You can use the Print Preview dialog to:

- View any page of a multiple-page report by using the arrow buttons.
- Print the displayed report by clicking the Print Data button.
- Zoom in and out on the report by using the drop-down Zoom menu.
- Save and export the displayed report to a file.
- E-mail the report directly from within MATWorX Studio if your e-mail system supports MAPI.

Chapter 6 DeviceServerWorX

In this chapter you learn about the following:

- What is the DeviceServerWorX?
- DeviceServerWorX Communication Overview
- DeviceServerWorX Configurations
- Centralized MAT Configuration
- DeviceServerWorX Online Help

What is the DeviceServerWorX?

The DeviceServerWorX (DSW) serves as a formatting and communication bridge between MATWorX Studio and the PBX or other connected devices. It replaces the PBX Access Manager (PAM) used in MATWorX 32 and earlier versions of MATWorX Studio.

Two additional components, the DeviceServerWorX Interface (DSI) (Figure 6-1) and the DeviceServerWorX Monitor (Figure 6-2), provide access to real-time logs of events and transactions between the server and the connected device.

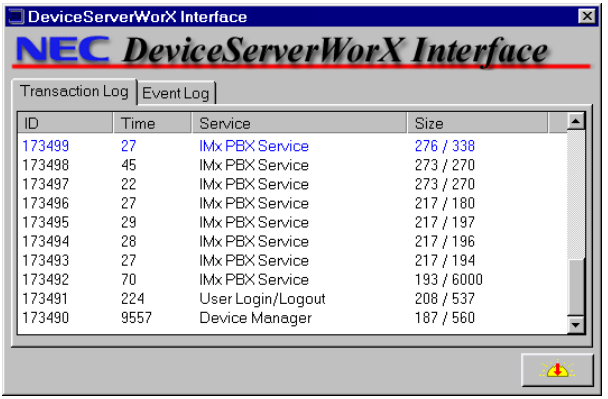
DeviceServerWorX Interface
NEC DeviceServerWorX Interface
Transaction Log
Event Log
ID Time Service Size
173499 27 IMx PBX Service 276 / 338
173498 45 IMx PBX Service 273 / 270
173497 22 IMx PBX Service 273 / 270
173496 27 IMx PBX Service 217 / 180
173495 29 IMx PBX Service 217 / 197
173494 28 IMx PBX Service 217 / 196
173493 27 IMx PBX Service 217 / 194
173492 70 IMx PBX Service 193 / 6000
173491 224 User Login/Logout 208 / 537
173490 9557 Device Manager 187 / 560

Figure 6-1 DeviceServerWorx Interface Window

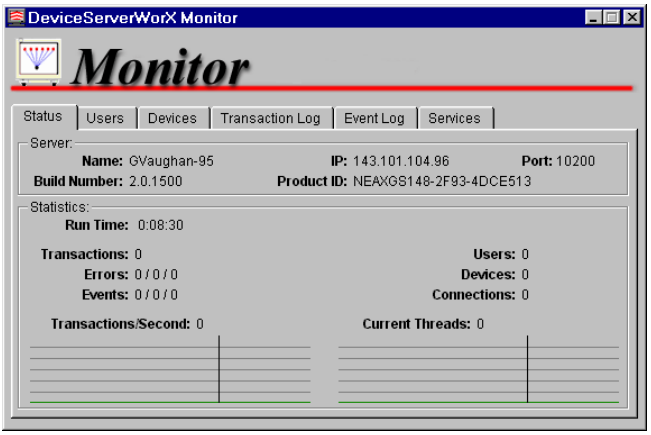

Figure 6-2 DeviceServerWorX Monitor Window

When you start MATWorX Studio, the DeviceServerWorX automatically starts. Then, when MATWorX Studio tools need access to connected devices, they send specific, formatted device commands to the DeviceServerWorX. This operation is transparent to the user.

DeviceServerWorX Communication Overview

The DeviceServerWorX provides an Application Programming Interface (API) that:

- Provides high-level Component Object Model (COM) commands that can be used by Windows-based applications, such as MATWorX Studio tools, to retrieve and program device data.
- Ensures all COM client applications yield enough time to each other to complete command transactions with the connected device.

Figure 6-3 represents the communication flow between MATWorX Studio tools, the DeviceServerWorX, and connected devices.

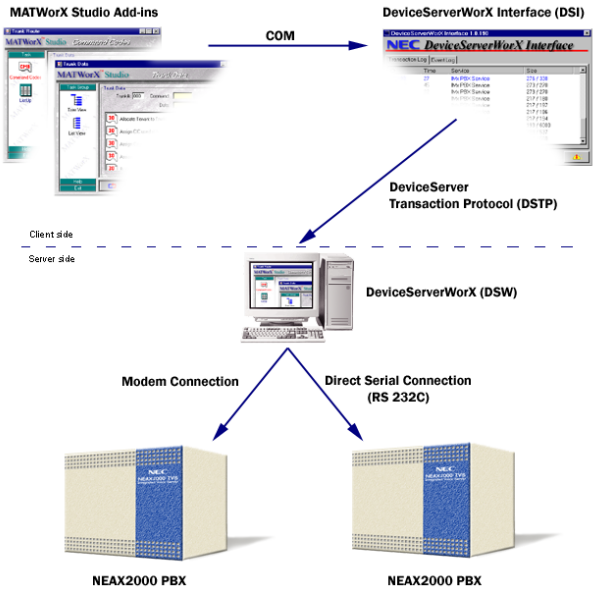

Figure 6-3 DeviceServerWorX Communication Flow

DeviceServerWorX Configurations

You can install the DeviceServerWorX in either a stand-alone or client/server configuration. When in a stand-alone configuration (Figure 6-4), it resides on the same computer as MATWorX Studio and connects to a single device via a modem, serial cable, or TCP/IP.

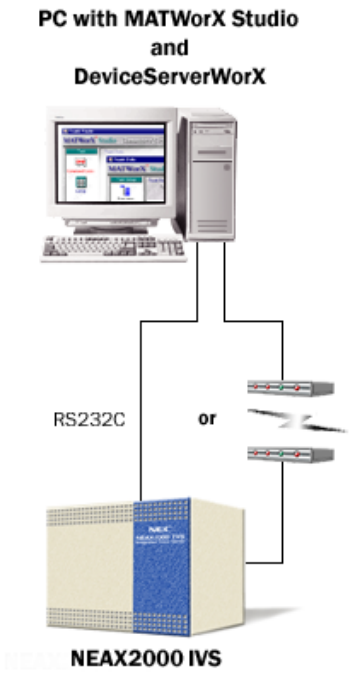

Figure 6-4 DeviceServerWorX Stand-alone Configuration

In a client/server configuration (Figure 6-5) the DeviceServerWorX gives connectivity to, and access from, multiple devices on a network.

Note: *The example configuration in Figure 6-5 shows the DeviceServerWorX and MATWorX Studio installed on separate computers. You can also install both components on the same computer.*

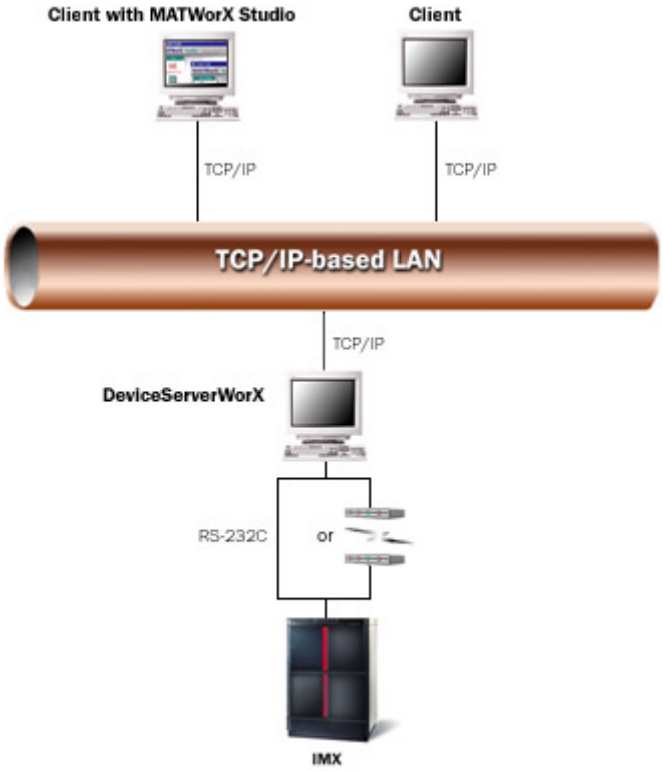

Figure 6-5 Example Client/Server Configuration

Centralized MAT Configuration

One type of DeviceServerWorX client/server configuration, called Centralized MAT, combines with a NEAX2400 IMX to give you the ability to manage a complex network of different device types.

In a Centralized MAT configuration (Figure 6-6), the DeviceServerWorX connects via any configured connection to a NEAX2400 IMX acting as a Network Control Node (NCN). This IMX, in turn, can connect to one or more IVS devices via CCIS or to IMX Local Nodes (LN) via FCCS.

Note: *Centralized MAT connections to a NEAX1000, NEAX2000 IVS, or NEAX2000 IVS^2 require Series 2000 software, or higher.*

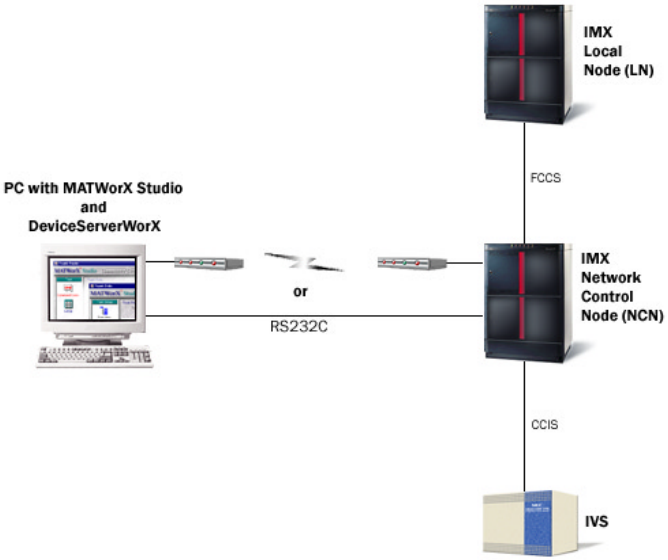

Figure 6-6 DeviceServerWorX Centralized MAT Configuration

DeviceServerWorX Online Help

The DeviceServerWorX application contains its own context-sensitive online Help system. This guide provides a simple overview to the features and capabilities of the DSW. For more detailed information, including procedures and detailed descriptions, access the DSW online Help system.

Accessing the DSW Help System

To display Help for the current DSW dialog, press **F1**. Refer to Chapter 11 “MATWorX Studio Online Help” for more information about features and ways to access and print Help topics.

What's This? Help

What's This? Help displays pop-up information about a particular field or button within a dialog. To display What's This? Help for a field or button, do the following:

1. Click the Help item from the Studio Toolbox to display a list of Help resources. Then, click the What's This Help item. The cursor changes to a question mark.

2. Position your cursor over a field or button in the Studio program and click it to display a pop-up containing information about that item.

Tool Tips

Tool Tips, sometimes referred to as "Balloon Help," provide a brief (one- or two-word) description of an active button on a dialog or menu. To display Tool Tips for a button, place your cursor over the button for one or two seconds, then a small pop-up window displays with the button's description.

This page is for your notes.

Chapter 7 Add-ins

In this chapter you learn about the following:

- What is an Add-in?
- Four Categories of Add-ins
- Installing an Add-in
- Starting an Add-in
- Removing an Add-in
- Add-in Online Help

What is an Add-in?

Add-ins are the individual tools of MATWorX Studio. Each one acts like a separate application and provides you with specialized capabilities to program PBX or other device features and functions. Using add-ins, you can program a PBX with information like station and trunk assignments, numbering plan data, caller ID, and more.

MATWorX Studio comes with several add-ins you can access from the Toolbox. You can run several add-ins at the same time. You can also create custom add-ins for specialized business solutions by purchasing a developer's kit from NEC or an authorized NEC dealer.

You can install or remove add-ins from the MATWorX Studio Toolbox. When you remove an add-in, MATWorX does not delete it from the program, it simply removes it from the Toolbox. You can easily add it back with just a few mouse clicks. This feature lets you customize the Toolbox so it displays only those add-ins you use regularly.

Four Categories of Add-ins

Features

Feature add-ins (Figure 7-1) simplify PBX or device response messages by translating them from cryptic data into a meaningful format. Software ID and Display Issue are two examples of this type of add-in.

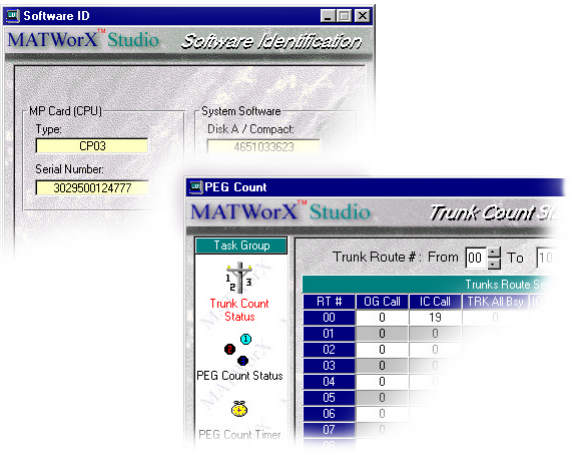

Figure 7-1 Feature Add-ins

Enhanced Features

Enhanced Feature add-ins (Figure 7-2) use one or more related commands to set up a specific task or feature within the PBX or device. For example, the MATWorX Studio NEAX2000 IVS & NEAX2000 IVS^2 Caller ID add-in uses multiple commands such as command 30, 09, 05, 06, 08, etc. to configure this enhanced feature in the PBX.

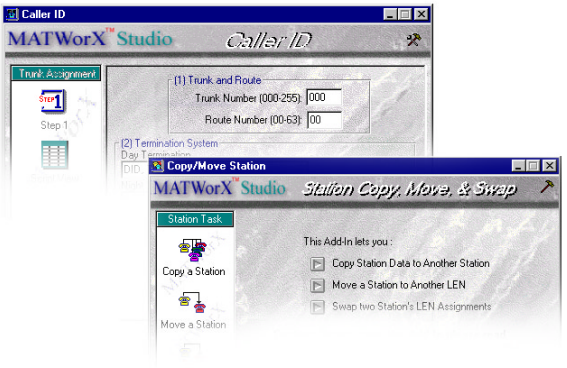

Figure 7-2 Enhanced Feature Add-ins

Commands

Command add-ins (Figure 7-3) let you set up data within the PBX or other devices for a specific command. For example, the MATWorX Studio NEAX2000 IVS & NEAX2000 IVS^2 Trunk Data and Trunk Route add-ins represent commands 30 and 35, respectively.

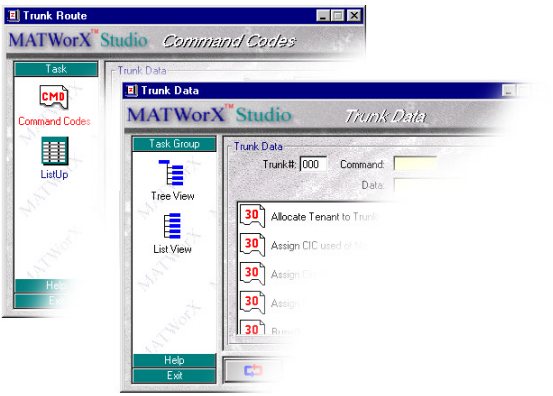

Figure 7-3 Command Add-ins

Wizards

Wizard add-ins (Figure 7-4) provide a simple way to perform difficult tasks by walking you through a series of questions in an automated process. MATWorX Studio then uses the answers to perform the task. For example, the Software Activation Tool Wizard (Figure 7-4) helps you obtain the key codes and serial numbers needed to activate device software.

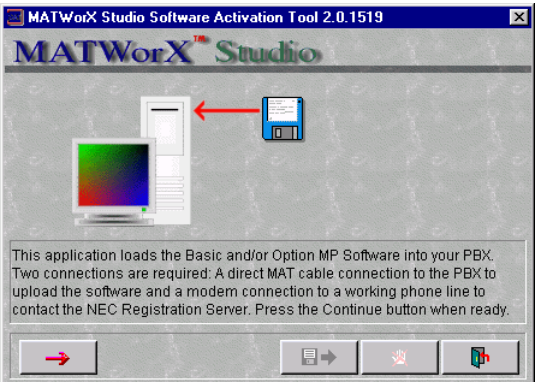
MATWorX Studio Software Activation Tool 2.0.1519
MATWorX™ Studio
This application loads the Basic and/or Option MP Software into your PBX. Two connections are required: A direct MAT cable connection to the PBX to upload the software and a modem connection to a working phone line to contact the NEC Registration Server. Press the Continue button when ready.

Figure 7-4 Software Activation Tool Wizard

Installing an Add-in

The following procedure explains how to install an add-in to the MATWorX Studio program so you can access it from the Toolbox:

1. Launch MATWorX Studio. The Toolbar and Work Area windows display (Figure 7-5).

Figure 7-5 Studio Toolbar and Work Area Windows

2. Click the item in the Toolbar representing your PBX or other device (Figure 7-5). The Toolbox window displays (Figure 7-6).

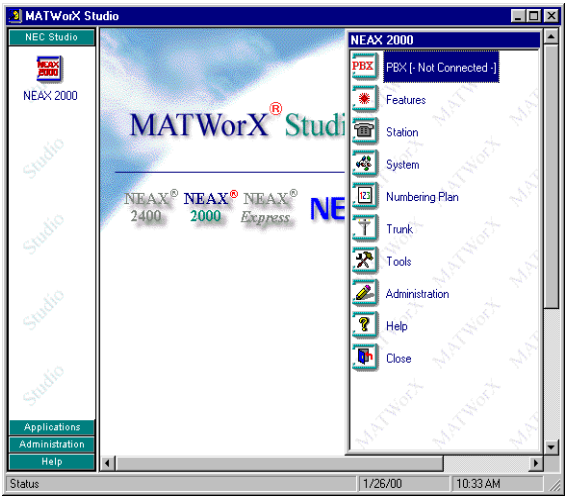

Figure 7-6 Studio Toolbar, Work Area, and Toolbox Windows

3. Right-click anywhere in the Toolbox to display the pop-up menu (Figure 7-7), then select Insert New Add-In.... The Add-In Components dialog appears (Figure 7-8).

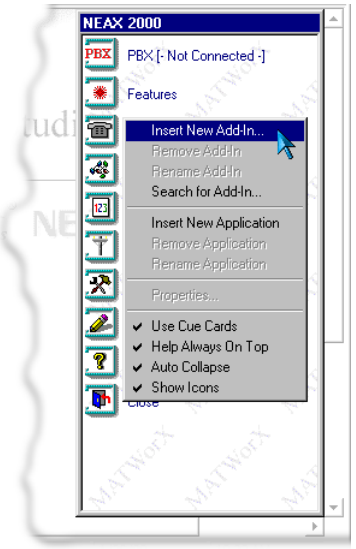

Figure 7-7 Toolbox Pop-up Menu

4. Select the add-in you wish to install from the Add-In Components dialog (Figure 7-8) and click the Open button. MATWorX Studio installs the add-in under the appropriate Toolbox category. You may need to click the appropriate Toolbox category to view the add-in.

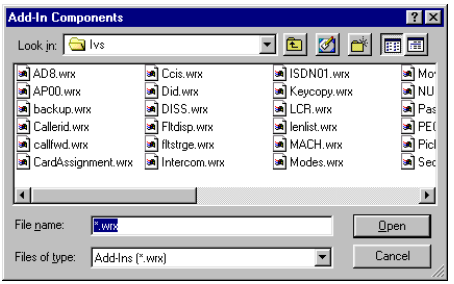

Figure 7-8 Add-in Components Dialog

You have now successfully installed an add-in.

Starting an Add-in

Use the MATWorX Studio Toolbox to start add-ins. After connecting to a device, click any Toolbox item to launch it or display a list of related add-ins.

Removing an Add-in

By default, MATWorX Studio installs all add-ins and makes them accessible from the Toolbox. When you remove an add-in, MATWorX Studio does not delete it from your computer's hard drive, it simply removes it from the Toolbox. You can easily add it back with just a few mouse clicks. This lets you customize the Toolbox so it displays only the add-ins you use regularly.

The following procedure explains how to remove an existing add-in from the MATWorX Studio Toolbox:

1. Launch MATWorX Studio. The Toolbar and Work Area windows display (Figure 7-9).

Figure 7-9 Studio Toolbar and Work Area Windows

2. Click the item in the Toolbar representing your PBX or other device. The Toolbox window displays (Figure 7-10).

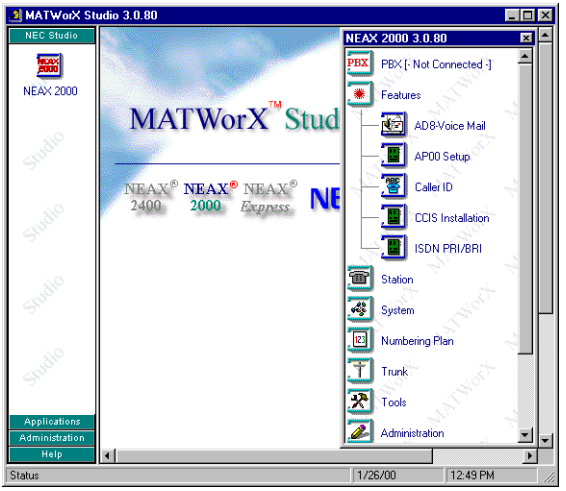

Figure 7-10 Studio Toolbox Window

3. Right-click on the add-in you wish to remove to display the pop-up menu (Figure 7-11), then select Remove Add-In. The Remove Add-In confirmation dialog appears (Figure 7-12).

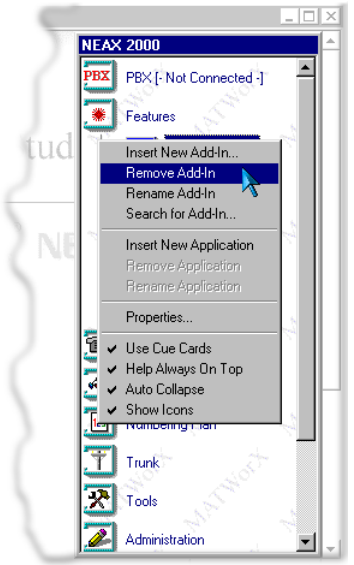

Figure 7-11 Toolbox Pop-up Menu

4. Click the Yes button to confirm you want to remove the add-in.

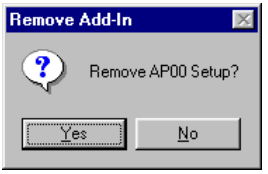

Figure 7-12 Remove Add-in Confirmation Dialog

You have now successfully removed an add-in.

Add-in Online Help

This guide provides a simple overview to the features and capabilities of add-ins. For more detailed information, including procedures and descriptions, press **F1** to access the online Help for each individual add-in.

Help for add-in dialogs is included in the MATWorX Studio online Help system. Refer to Chapter 11 “MATWorX Studio Online Help” for features and ways to access and print Help topics.

This page is for your notes.

Chapter 8 MACH Script Editor

In this chapter you learn about the following:

- What is the MACH Script Editor?
- Starting the MACH Script Editor
- MACH Script Editor Online Help

What is the MACH Script Editor?

The MOC Accelerated Command Heap (MACH) Script Editor (Figure 8-1) is a powerful time-saving tool integrated into MATWorX Studio for use with the NEAX EXPRESS, NEAX2000 IVS and IVS^2. It is similar to working with the Maintenance Operation Console (MOC), but provides much more functionality by enabling you to create a list of NEAX2000 commands (a script) to perform tasks in the PBX. You can save, print, or run the script at any time.

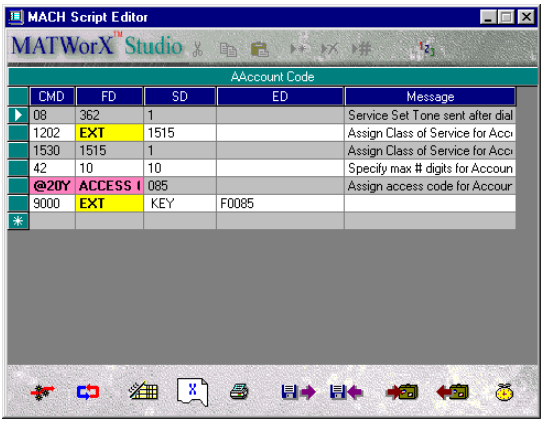

Figure 8-1 MACH Script Editor Dialog

Starting the MACH Script Editor

The following procedure explains how to access and run the MACH Script Editor from MATWorX Studio.

1. Launch MATWorX Studio. The Toolbar and Work Area windows display (Figure 8-2).

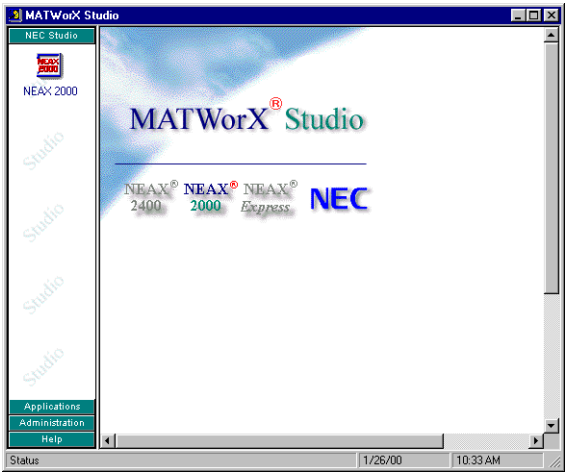

Figure 8-2 Toolbar and Work Area Windows

2. Click the item in the Toolbar representing your PBX or other device. The Toolbox window displays (Figure 8-3).

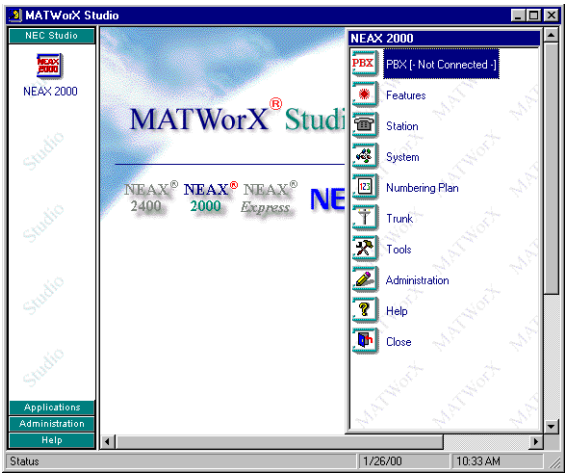

Figure 8-3 Toolbox Window

3. Click the Tools item in the Toolbox. A list of installed tools applications displays (Figure 8-4).

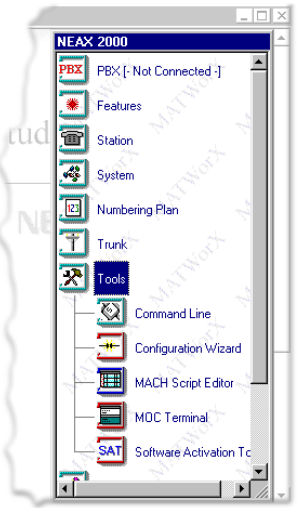

Figure 8-4 Toolbox Window and Tools Items

4. Click the MACH Script Editor item to start the application.

You have now successfully launched the MACH Script Editor dialog.

MACH Script Editor Online Help

This guide provides a simple overview to the features and capabilities of the MACH Script Editor. For more detailed information, including procedures and descriptions, press **F1** to access the online Help for the MACH Script Editor.

Help for the MACH Script Editor is included in the MATWorX Studio online Help system. Refer to Chapter 11 “MATWorX Studio Online Help” for features and ways to access and print Help topics.

Chapter 9 NEC Scheduler

In this chapter you learn about the following:

- What is the NEC Scheduler?
- Starting the NEC Scheduler
- NEC Scheduler Online Help

What is the NEC Scheduler?

The NEC Scheduler (Figure 9-1) is a versatile application that can be used stand-alone or in conjunction with the MACH Script Editor. You can build and schedule scripts (a series of NEAX2000 commands) within the MACH Script Editor and then schedule them to run using the NEC Scheduler. You can schedule the script to run at certain times during a day, week, or month. You can build simple or complex scripts that will modify PBX behavior at scheduled times.

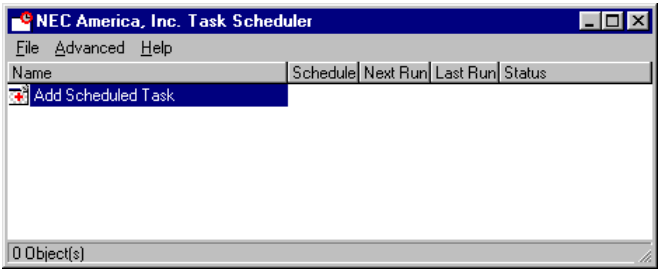

Figure 9-1 NEC Scheduler Dialog

For example, you can use the NEC Scheduler to:

- Log in to a PBX or other device.
- Schedule MATWorX Studio add-ins to run.
- Schedule MACH scripts to run.
- Schedule other programs outside of MATWorX Studio to run.
- Schedule PBX or other device system backups.
- View the results of a script or command operation.
- Print a script or command operation.

Starting the NEC Scheduler

The NEC Scheduler automatically starts and runs in the background each time you start Windows. While it is running, an NEC Scheduler icon displays in the Windows System Tray.

If the NEC Scheduler fails to start, or if you have closed it, perform the following procedure to access and run the NEC Scheduler from MATWorX Studio.

Note: *You can also start the NEC Scheduler by selecting* Programs / NEC / MATWorX Studio / NEC Scheduler *from the Windows* Start *button.*

1. Launch MATWorX Studio. The Toolbar and Work Area windows display (Figure 9-2).

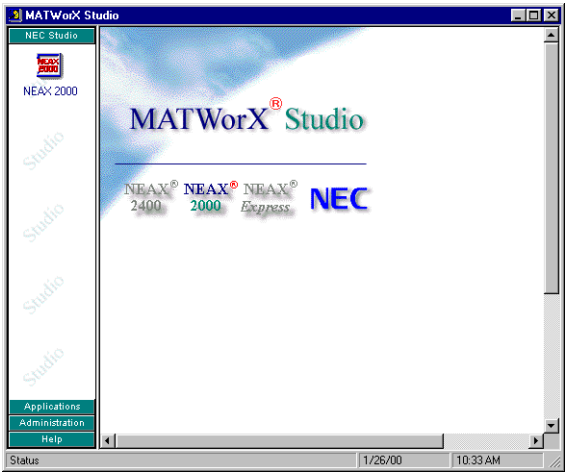

Figure 9-2 Toolbar and Work Area Window

2. Click the Applications group item in the Toolbar (Figure 9-2). The Applications group window displays (Figure 9-3).

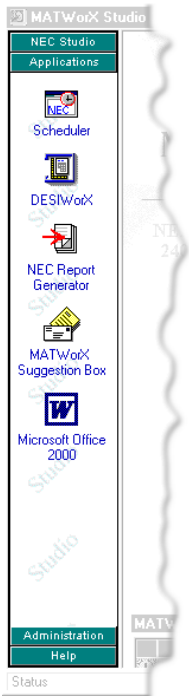

Figure 9-3 Applications Group Window

3. Click the NEC Scheduler item to launch the application.

NEC Scheduler Online Help

The NEC Scheduler application contains its own context-sensitive online Help system. This guide provides a simple overview to the features and capabilities of the NEC Scheduler. For more detailed information, including procedures, descriptions, tools, and tips, access the NEC Scheduler online Help system.

Accessing NEC Scheduler Online Help

To display Help for the current NEC Scheduler dialog, press **F1**. Refer to Chapter 12, "MATWorX Studio Online Help" for more information about features and ways to access and print Help topics.

What's This? Help

What's This? Help displays pop-up information about a particular field or button within a dialog. To display What's This? Help for a field or button, do the following:

1. Click the Help item from the Studio Toolbox to display a list of Help resources. Then, click the What's This Help item. The cursor changes to a question mark.

2. Position your cursor over a field or button and click it to display a pop-up window containing information about that item.

Tool Tips

To display Tool Tips for a button, place your cursor over the button for one or two seconds, then a small pop-up window displays with the button's description.

This page is for your notes.

Chapter 10 DESIWorX

In this chapter you learn about the following:

- What is DESIWorX?
- Starting DESIWorX
- DESIWorX Online Help

What is DESIWorX?

DESIWorX (Figure 10-1) is a unique application that lets you create and print function key labels for your Dterm telephones. DESIWorX saves the labels in a database so you can modify and print them when necessary.

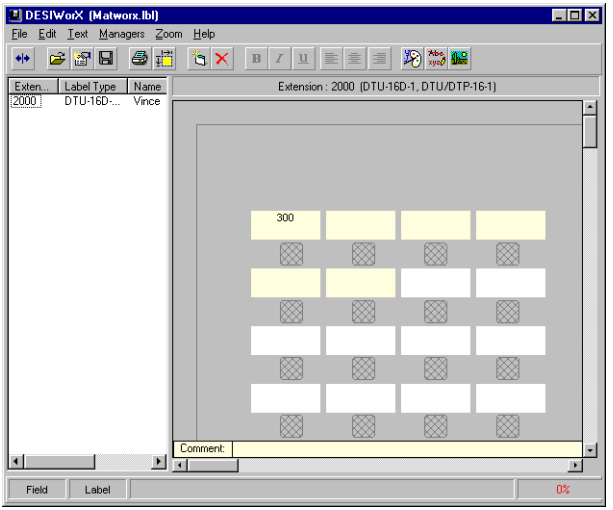

Figure 10-1 DESIWorX Dialog

You can use the DESIWorX to:

- Create a label database, including label design.
- Add a bitmap to a label.
- Create, modify, and delete label macros.
- Print labels.

Starting DESIWorX

The following procedure explains how to access and run DESIWorX from MATWorX Studio.

Note: *You can also start DESIWorX by selecting Programs / NEC / DESIWorX from the Start taskbar in Windows.*

1. Launch MATWorX Studio. The Toolbar and Work Area windows display (Figure 10-2).

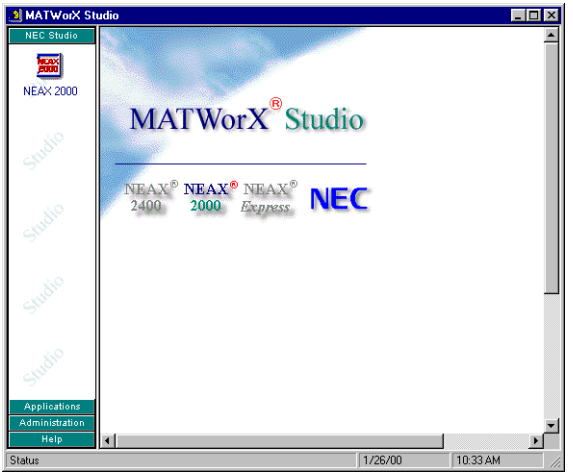

Figure 10-2 Studio Toolbar Window

2. Click the item in the Toolbar representing your PBX or device (Figure 10-2). The Toolbox window displays (Figure 10-3).

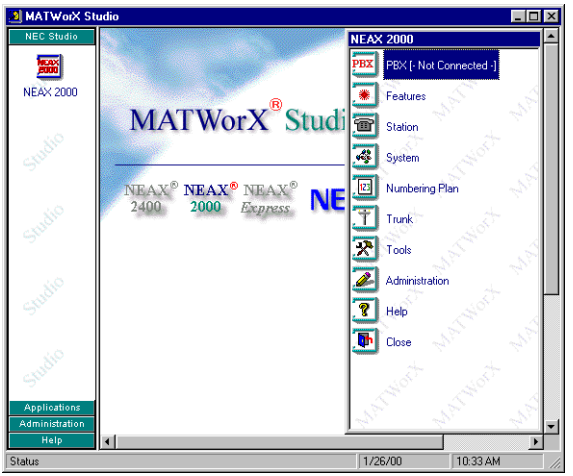

Figure 10-3 Studio Toolbar, Work Area, and Toolbox Windows

3. Click the Applications item in the Toolbox to display a list of installed applications.

4. Click the DESIWorX item to launch the application.

You have now successfully launched the DESIWorX application.

DESIWorX Online Help

The DESIWorX application contains its own context-sensitive online Help system. This guide provides a simple overview to the features and capabilities of DESIWorX. For more detailed information, including procedures and descriptions, access the DESIWorX online Help system.

Accessing DESIWorX Online Help

To display Help for the current DESIWorX dialog, press **F1**. Refer to Chapter 12, “MATWorX Studio Online Help” for more information about features and ways to access and print Help topics.

What's This? Help

What's This? Help displays pop-up information about a particular field or button within a dialog. To display What's This? Help for a field or button, do the following:

1. Click the Help item from the Studio Toolbox to display a list of Help resources. Then, click the What's This Help item. The cursor changes to a question mark.

2. Position your cursor over a field or button and click it to display a pop-up window containing information about that item.

Tool Tips

Tool Tips, sometimes referred to as "Balloon Help", provide a brief (one- or two-word) description of an active button on a dialog or menu. To display Tool Tips for a button, place your cursor over the button for one or two seconds, then a small pop-up window displays with the button's description.

Chapter 11 MATWorX Studio Online Help

In this chapter you learn about the following:

- MATWorX Studio Online Help Features
- Accessing the Online Help System
- Printing Help Topics

MATWorX Studio Online Help Features

Within the online Help system, you will find a wealth of useful information pertaining to the MATWorX Studio program and its tools and applications. MATWorX Studio is a modular program that can be customized to suit your hardware configuration and personal preferences. Therefore, you will find individual Help systems for the MATWorX Studio environment and each of the tools and applications. Some features include:

- Help for each dialog, including a description and purpose of the dialog and its buttons
- Context-sensitive “What’s This?” Help for every control (field and button) within a dialog
- Tool Tips when your cursor is positioned over active buttons
- Step-by-step procedures for configuring and programming an NEC PBX or other device

Accessing the Online Help System

There are several ways to access and use the online Help system within MATWorX Studio. You can display Help and work in your current MATWorX Studio dialog while a Help window is open. You can also resize and move the MATWorX Studio dialog or the Help window to make it easier to display and follow the Help procedures while you work in MATWorX Studio.

MATWorX Studio provides four types of Help. These include Main Help Contents, Dialog-level Help, What's This? Help, and Tool Tips.

Main Help Contents

To access the main Help contents for MATWorX Studio, click the Help group in the Toolbar. Then, click the Help item. The MATWorX Studio Help appears.

To access the main Help contents for a MATWorX Studio Toolbox, click the item in the Toolbar representing your PBX or other device. The Toolbox window appears. Click the Help item in the Toolbox to expand it. Then, click the Help item. The Toolbox Help appears.

Dialog-level Help

To display Help for the current MATWorX Studio dialog or add-in, press **F1**.

What's This? Help

What's This? Help displays pop-up information about a particular field or button within a dialog. To display What's This? Help for a field or button, do the following:

1. Click the Help item from the Studio Toolbox to display a list of Help resources. Then, click the What's This Help item. The cursor changes to a question mark.

2. Position your cursor over a field or button in the Studio program and click it to display a pop-up window containing information about that item.

Tool Tips

Tool Tips, sometimes referred to as “Balloon Help,” provide a brief (one- or two-word) description of an active button on a dialog or menu. To display Tool Tips for a button, place your cursor over the button for one or two seconds, then a small pop-up window displays with the button’s description.

Printing Help Topics

1. Access the Help topic you want to print.
2. Click the **Print** button or select Print Topic from the File menu. The Print dialog displays.
3. Click **OK**.

Tip: *You can use your right mouse button to click inside the Help window, then click Print Topic. You can also use this method to print the contents of a pop-up window.*

This page is for your notes.

Appendix A Extended Command Set

The Extended Command Set is a set of custom commands you can use in the MACH Script Editor. These extended commands provide enhanced functionality to many of the existing NEAX2000 Commands for the NEAX EXPRESS, NEAX2000 IVS and IVS^2. The extended commands let you quickly and easily perform complicated tasks within a script by reducing the number of commands needed.

The NEAX EXPRESS and NEAX2000 IVS Command Sets consist of the commands used with a MAT Terminal, as specified in the "NEAX2000 IVS Command Manual." (The commands look like: CM12 YY=03.)

The Extended Command Set characters are modifiers you type in front of the NEAX2000 command in the MACH Script Editor window. The following list represents the Extended Command Set.

@10 Finds the LEN assigned to the station in the First Data field and displays the LEN in the Second Data field.

~10 Swaps the LEN assignments of the stations indicated in the First and Second Data fields.

>10 Moves the station in the First Data field to the LEN indicated in the Second Data field.

&10 Assigns an Add-On Module to the station in the First Data field.

%10 Finds the Line Equipment Card type (MP) associated with the LEN in the First Data field and then displays it in the Second Data field.

^12 Copies the Class-1 Feature assignments from the station in the First Data field to the station in the Second Data field.

^13 Copies the Class-2 Feature assignments from the station in the First Data field to the station in the Second Data field.

@20X (where X represents the Numbering Plan Group 0 - 3) Finds the Access Codes assigned to the Feature Code displayed in the First Data field. The first returned Access Code is displayed in the SD field. Additional Access Codes are displayed in the ED field.

^90 Copies the Programmable Key assignments from the station in the First Data field to the station in the Second Data field.

@980 Determines whether an Add-On exists for the station in the First Data field.

?1X (where X represents any command from the NEAX2000 IVS Command Set) Uses the First Data specified in the previous command as the First Data in this command. (Leave this Second Data field blank.)

?2X (where X represents any command from the NEAX2000 IVS Command Set) Uses the Second Data, that was specified or returned as a result of the previous command, as the First Data in this command. (Leave this Second Data field blank.)

***X** (where X represents any command from the NEAX2000 IVS Command Set) Performs a PBX System Reset after executing the specified command. This operation will drop all calls, and should not be used with modem connections—only with direct connections.

! Performs a PBX System Reset. This operation will drop all calls, and should not be used with modem connections—only with direct connections.

LX (where X represents any command from the NEAX2000 IVS Command Set) Performs a lookup and listing of all Second Data. (For example, L10 retrieves all LEN assignments.) **This Extended Command cannot be used with any other Extended Commands in a script; it must be the only command line in a script.**

LFX (where X represents any command from the NEAX2000 IVS Command Set) Performs a filtered lookup and listing of all existing Second Data. (For example, LF10 retrieves all existing LEN assignment data, but leaves out data for the unassigned LENs.) **This Extended Command cannot be used with any other Extended Commands in a script; it must be the only command line in a script.**

MZT Monitor zone transceiver download process. This should be used immediately after command AE YY=00 returns an "OK" once the download is complete, or returns a "User Cancelled" if the download was cancelled by the user.

LZT Performs a lookup for a specified range of zone transceivers. Returns data for commands 10, E5 YY=00, AD YY=19, and 06 YY=10.

LMEM Performs a lookup of all members of a group (hunt, pickup, ACD/UCD) when given a station number that belongs to a group. First Data = station = group, Second Data = 0 = pickup, 1 = UCD, 2 = hunting.

LUCD Performs a lookup of stations that are not in a group (hunt, pickup, ACD/UCD), potential pilot numbers, and unused group numbers. Command = NGRP, PLT, GRP, First Data =

station number or group number. Potential pilot is a single line station that is not in another group, nor is a phantom.

LPLT Performs a lookup of all pilot numbers that are currently in use or belong to existing groups (hunt, pickup, ACD/UCD).

LGRP Performs a lookup of all stations that are currently members of a group (hunt, pickup, ACD/UCD).

LSTN Performs a lookup of all stations in a system. First Data = LEN range 0 - 511.

LNGRP Performs a lookup of all stations that are not in a group (hunt, pickup, ACD/UCD). First Data = LEN range 0 - 511.

LMP Performs a lookup of all MP cards in a system. First Data = LEN range 0 - 511, Second Data = Time Slots.

@LEN Finds first unused LEN. First Data = starting LEN in which to count down.

@VLEN Find first unused virtual LEN, beginning at 255 and counting down. First Data = starting LEN in which to count down.

I Iterate option. Typing an I in front of a command (such as CMD10) uses the **Start Value** (First Data) and **Stop Value** (End Data) you specify in order to return the results for each value from the PBX.

Prefix+Cmd	FData	Sdata	Edata
I10	020		040

For example, **I10 020 0040** where 020 = First Data and 040 = End Data will return all LENs between 20 and 40, inclusive. You can also go backwards, such that I10 040 020 will return all LENs between 40 and 20, inclusive.
** See Note below.*

R Repeat Until option. Typing an R in front of a command (such as CMD10) uses the **Start Value** (First Data) and **Stop Value** (End Data) you specify in order to return the results for each value from the PBX.

Prefix+Cmd	Fdata	Sdata	Edata
R10	020		NONE

For example, **R10 020 NONE** where 020 = First Data and NONE = End Data will return the CMD10 results for each value from 020 until it hits invalid data or it finds a result equal to "NONE." That is, the first empty LEN greater or equal to 20; and all LENs between it and LEN 20.
** See Note below.*

X Exclude Results option. This option is used in conjunction with options **I** and **R** described above. When multiple options are used, the parameters of the subsequent options are appended to the current End Data which are separated by a tab. The parameters are in the same order as the options.

Prefix+Cmd	Fdata	Sdata	Edata
XI10	020		NONE & vbTAB & 040

For example, **XI10 020 NONE & vbTAB & 040** where 020 = First Data, NONE & vbTAB & 040 = Parameters and End Data. This iterates CMD10 from 020 to 040 excluding "NONE," which will return the CMD10 results for each value from 020 to 040 if the result is not equal to "NONE." That is, all used LENs between 20 and 40, inclusive.
** See Note below.*

! NOT Parameter Flag. This parameter is used in conjunction with options **R** and **X** described above.

Prefix+Cmd	FData	Sdata	Edata
R10	020		!NONE

For example, **R10 020 !NONE** where 020 = First Data, NONE = End Data, ! = NOT Parameter, which will repeat CMD10 starting with 020 and increasing by 1 until the result equals NOT "NONE." This will return the CMD10 results for each value from 020 until it hits invalid data or it finds a result NOT equal to "NONE." That is, all unassigned LENs between 20 and the first assigned LEN greater than or equal to 20.
** See Note below.*

Note: You can use multiple options (I, R, X described above) to prefix a NEAX2000 command. When multiple options are used, the additional parameters are added to the End Data. These additional parameters are in the same order as the options and are separated by a tab.

Prefix+Cmd	FData	Sdata	Edata
XIR10	040		!NONE & vbTAB & 020 & vbTAB & 345

For example, **XIR10 040 !NONE & vbTAB & 020 & vbTAB & 345** where XIR = Options, 10 = CMD, 040 = First Data, !NONE & vbTAB & 200 & vbTAB & 345 = Parameters and End Data. This will iterate CMD10 from 020 to 040 increasing by 1, excluding NOT "NONE," which will return CMD10 results for each value from 020 to 040 if the result is equal to "NONE," which will stop when station 345 is found. That is, all unassigned LENs between 20 and 40, inclusive, or all unassigned LENs unless

between 20 and the LEN that has station 345 assigned to it. When used together, the Repeat (R) option takes precedence over the Iterate (I) option.

This page is for your notes.